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Oral Presentations

ULTRASOUND: ROUTINE USE IN GYNAECOLOGY

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The introduction of ultrasound revolutionised modern gynaecological and obstetric practice, and continues to do so. Since its discovery in the early 1800s, ultrasound applications in clinical care have become both extensive and complementary. Ultrasound is an important tool in every gynaecologist's armamentarium.

More recently the traditional transabdominal route has been supplemented by transvaginal and translabial ultrasound. Although the transvaginal route was first described in 1965, there was an almost 20-year wait before its use became practical and popular in gynaecological scanning. There is no doubt that the advent of transvaginal scanning (at higher frequencies of 5 - 8 MHz and resulting in much finer resolution) has had a significant impact on the diagnosis of early pregnancy assessment, general gynaecology, gynaecological oncology, infertility assessment and urogynaecology. More recently the introduction of 3- and 4-dimensional ultrasound has enabled clinicians to achieve greater diagnostic accuracy. The aim of this presentation will be to convince the audience of the vital role of ultrasound in the field of both emergency and elective gynaecological conditions.

SHOULD WE FORGET ABOUT PESSARIES?

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Pelvic organ prolapse is a common condition, especially in the elderly, with a significant negative impact on various quality of life domains. Although a variety of surgical procedures have been described, not all patients accept and qualify for surgical intervention. Recently there has been a renewed interest in the use of vaginal pessaries as a treatment option for prolapse. Currently clinicians mainly opt for vaginal pessaries as a treatment option for those with co-morbid medical conditions, in women who still want to bear children, as interim relief before surgery, and for those who prefer non-surgical treatment. Recent data have shown that when pessaries were offered as a treatment option to patients with symptomatic prolapse, nearly two-thirds opted for a pessary over surgery as initial management.

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Vaginal pessaries are non-invasive and have been shown to be effective in the short term. Pessaries are available in a variety of size, shapes and materials (silicone, lucite, rubber and plastic). Silicone has several advantages over other materials in that it is relatively inert and therefore has low allergenicity, and vaginal odour is minimised because it does not absorb secretions.

As surgery is not always successful and is associated with potential morbidity and mortality, it is important to offer all women the choice of other effective, simple and reversible treatment options. With a failure rate of 30% for primary repair, lack of evidence about the best surgical technique and poorly defined patient outcome measures, the use of pessaries for prolapse is a viable, reversible and safe treatment option.

IS IUI A COST-EFFECTIVE OPTION COMPARED WITH ICSI IN PATIENTS WITH POOR PATTERN MALE MORPHOLOGY?

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INTRODUCTION: We present a retrospective comparative study assessing the cost effectiveness of IUI compared with ICSI in patients less than 36 years old and with a male poor pattern morphology.

METHODS: Data were collected from the Vincent Pallotti infertility clinic from January 2008 to March 2010. The patients who had an IUI were divided into two cohorts, those who used Clomid and those who used Femara. The sperm patterns were then compared in the different groups. Pregnancy outcomes in patients with poor sperm patterns were then evaluated and compared with patients who had ICSI in the same time frame.

RESULTS: The total number of patients in the Femara cohort was 273 and in the Clomid cohort 566; 18.7% of the Femara cohort and 18.3% of the Clomid cohort had p-pattern morphology. The overall pregnancy rates comparing IUI and ICSI show that the success rate of IUI after 4 attempts is ±9% at a cost of R2 500 for each attempt. The overall success rate in the ICSI cohort is 38 - 40% per cycle, costing ±R22 000.

CONCLUSION: In the IUI cohort there was no difference in male sperm morphology with Clomid and Femara use. Looking at financial implications of IUI v. ICSI, the cost is doubled. Review of realistic statistics shows IUI to be a viable cost-effective alternative for artificial insemination compared with ICSI in patients with poor pattern male sperm morphology.

WHEN TO STOP HORMONE THERAPY

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Menopausal women may experience multiple symptoms, while others are asymptomatic or their symptoms go unnoticed. Hormone therapy (HT) was prescribed to nearly all postmenopausal women for the relief of their menopausal symptoms. In addition, it was helpful in osteoporosis prevention, and observational and basic science data supported the view of protection against coronary heart disease (CHD). The WHI (oestrogen and progestin arm) and HERS II studies in 2002 failed to show benefit in cardiovascular protection. The risk of breast cancer was significantly increased after 5 years of oestrogen-progestin HT. Re-analysis of WHI revealed that younger women (50 - 60 years) were most likely to benefit from HT, including a lower risk of CHD. HT was mainly indicated for symptomatic relief of menopausal symptoms. This led to a policy of the lowest effective dose for the shortest period of time. In order to determine the shortest period of time, well women who have no complication necessitating the cessation of HT will need to stop HT at some stage to determine whether symptoms have resolved or not. Tapering of the dose has not been found to decrease the return of symptoms when compared with abrupt cessation of HT. Long-term use of HT in cases of recalcitrant menopausal symptoms or in women at high risk of osteoporotic fractures must be punctuated by serial attempts to exclude the risk of breast cancer. Treatment must be tailored for the individual woman after explanation of the risks and benefits.

AN AUDIT OF RENAL BIOPSIES DONE IN PREGNANT PATIENTS AT KALAFONG AND STEVE BIKO ACADEMIC HOSPITALS

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METHODS: We reviewed 58 renal biopsies performed between 2005 and 2009 on pregnant patients who presented with early onset of pre-eclampsia and/or proteinuria of more than 1 g/24 h antenatally or in the immediate postpartum period at Kalafong and Steve Biko hospitals. Indications, histopathological findings, complications and neonatal outcome were reviewed for each case. Demographic and clinical data were recorded on a data sheet.

RESULTS: A total of 58 biopsies were reviewed. Seventeen patients had biopsies for proteinuria of more than 1 g/24 h only, and 41 patients had pre-eclampsia and/or proteinuria of more than 1 g/24 h. Thirty-six patients underwent biopsy during the antepartum period and 22 in the postpartum period. Only 15 patients had the classic histopathological pre-eclamptic lesion glomerulo-endotheliosis confirmed, and 2 had no pathology (normal); 41 patients had underlying renal pathology. Two patients had complications, 1 renal. Fetal outcome was analysed in 51 cases: 12 patients (23%) had intra-uterine fetal deaths, 5 (10%) had miscarriages, 13 pregnancies (25%) had to be terminated for maternal reasons, and there were 21 live births (41%), of which 5 (10%) were term and 16 (31%) were preterm deliveries.

CONCLUSION: Underlying renal pathology should be considered in patients who present with atypical pre-eclampsia and/or proteinuria of more than 1 g/24 h. Kidney biopsy in pregnancy is a morbid procedure and should be considered only if it offers the opportunity to make a diagnosis other than severe pre-eclampsia in a patient remote from term. Pregnancy complicated by renal pathologies carries a poor fetal outcome.

HIV-POSITIVE ADOLESCENTS: DYING TO FALL PREGNANT

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INTRODUCTION: There are 1.2 billion adolescents (10 - 19 years) globally, and 85% of them are living in the developing countries. An estimated 12.8 million births to adolescents occurred in the developing countries in the years 1995 - 2000, the majority of them in Africa. Adolescent pregnancy poses a high risk of mortality and morbidity. Additionally, HIV-positive status pushes the risk of mortality and morbidity even higher among adolescents.

METHODS: This was a record review over the period January - June 2008, including all HIV-positive adolescents (10 - 19 years) who delivered a fetus of 500 g and more at Johannesburg Hospital.

RESULTS: A total of 97 adolescents (15% of all adolescent deliveries) were HIV positive. The median age was 18 years (14 - 19 years). Twenty-two adolescents (23%) were multigravidas. The mean booking GA was 27 weeks. Twenty-one adolescents (22%) had never attended an antenatal clinic. A total of 36 adolescents (37%) were unbooked (less than 2 visits). A total of 17 adolescents (18%) had chronic diseases such as AIDS (9; 50%), asthma (4; 22%), epilepsy (1; 6%), pneumonia (1; 6%), measles (1; 6%) and TB (1; 6%). Among 54 adolescents (56%) who had some antenatal complications, PTL (39; 72%), PET (10; 18%), postdates (7; 13%) and PROM (3; 7%) were commonly observed. The mean GA at delivery was 37 weeks. The CS and assisted delivery rates were 63 (65%) and 1 (1%), respectively. One adolescent mother died, and the maternal death rate was 1 030/100 000 among the HIV-positive adolescents.

CONCLUSION: Although the rate of HIV positivity is lower than that for adults, large numbers of pregnant adolescents are already suffering from AIDS. A large number are multiparous at an early age. Very poor antenatal attendances are noted. Chronic diseases are common, mostly AIDS. The PTL rate was very high along with the CS rate. An extremely high maternal death rate among adolescents is a concern.

Pregnant adolescents should be viewed as having high-risk pregnancies and should only be managed at secondary- and tertiary-level hospitals.

LAPAROSCOPY OR LAPAROTOMY FOR THE MULTIFIBROID UTERUS?

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Uterine leiomyomas are the most common benign neoplasms of the female genital system. The presence of uterine fibroids has been associated with infertility, miscarriages, abnormal uterine bleeding, pelvic pain and various pressure effects. Symptomatic fibroids are a common reason for gynaecologists to perform major surgery. Myomectomy is the preferred method of treatment, especially in patients who still desire to have children. Extensive adhesion formation is frequent after myomectomy, and the effects of these adhesions may impair reproductive and bowel function.

Although the laparotomic approach is still the most common method employed, the laparoscopic, vaginal and hysteroscopic approaches provide several advantages over laparotomy. Skills and correct patient selection are mandatory in these options. As with all surgical procedures, meticulous surgical techniques, minimal tissue handling and exposure are essential in minimising unwanted side-effects.

There is always a risk of recurrence of myoma with surgical myomectomy, whether it is performed by laparoscopy or laparatomy. Because of the risk of recurrence and hence repeated surgery, patients should be offered the least invasive surgical approach.

SCANNING CASES WITH SUSPECTED VIRAL INFECTIONS

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Viral infections in pregnancy are major causes of maternal and fetal morbidity and mortality. The clinical manifestations of neonatal infections vary depending on the viral agent and gestational age at exposure. The risk of infection is usually inversely related to gestational age at acquisition, some resulting in a congenital malformation syndrome. Infections known to produce congenital defects have been described with the acronym TORCH (toxoplasma, others, rubella, cytomegalovirus, herpes). The 'others' category has rapidly expanded to include several viruses known to cause neonatal disease. Traditionally, the only viral infections of concern during pregnancy were those caused by rubella virus, CMV, and herpes simplex virus (HSV). Other viruses now known to cause congenital infections include parvovirus (B19V), varicella zoster virus (VZV), measles virus, enterovirus, adenovirus and human immunodeficiency virus (HIV). Worldwide, congenital HIV infection is now a major cause of infant and childhood morbidity and mortality, responsible for an estimated 4 million deaths since the start of the HIV pandemic.

CMV is the most common virus known to be transmitted *in utero*, affecting approximately 0.5 - 1.5% of births. About 40% of maternal CMV infections during pregnancy result in congenital infection. The observation on ultrasonography of growth restriction, echogenic bowel and/or cerebral anomalies (microcephaly, calcifications, hydrocephaly, etc.) should raise suspicion of CMV infection.

Parvovirus. Of intra-uterine fetal deaths, 3 - 14% occur in the setting of B19V infection. Second-trimester infections have been studied most frequently because infection in this trimester carries a 1 - 3% risk of hydrops; however, infection in any trimester may result in intra-uterine fetal loss. The critical period for the development of fetal hydrops is when maternal B19V infection is acquired between the 13th and 16th week of gestation, possibly because of the relative immaturity of the fetal immune response, as well as the shortened life span of the red blood cells at this gestational age.

Varicella zoster virus. Congenital varicella results in spontaneous abortion (3 - 8%), chorioretinitis, cataracts, limb atrophy, cerebral cortical atrophy, and/or neurological disability. Spontaneous abortion has been reported in 3 - 8% of first-trimester VZV infections, and congenital varicella syndrome in 12%. Ultrasonographic findings include limb abnormalities.

Enterovirus. Some studies have linked coxsackievirus and echovirus to miscarriage, neurodevelopmental delay, myocarditis and cortical necrosis. Screening should be considered when pericardial effusion is seen in pregnancy.

The treatment of these infections had been limited in the past. However, many studies of antivirals have shown that treatment may yield benefit in selected cases. Among these newly described treatments, the most studied include maternal administration of valacyclovir in symptomatic fetuses after intra-uterine CMV. A randomised trial is currently being carried out (www.cymeval.org). Acyclovir has also been given in maternal varicella infections. Other treatment options that have shown to be lifesaving in small case reports include intra-uterine blood transfusions to treat hydrops fetalis due to B19V infection.

ULTRASOUND ASSESSMENT OF THE VERY PRETERM GROWTH-RESTRICTED BABY

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Antenatal surveillance in pregnancies with growth restriction (GR) due to placental insufficiency must be based on longitudinal assessment whereby each fetus is used as its own control. Assessment frequency is tailored to the severity of the fetal condition and includes fetal biometry, amniotic fluid evaluation, Doppler assessment of the fetal arterial and venous circulation, fetal heart rate (FHR) monitoring and evaluation of fetal movements and tone. The two main therapeutic interventions in GR pregnancies are the administration of prenatal steroids and delivery. The administration of a completed course of steroids is recommended until 34+0 weeks gestation, as GR fetuses do not derive a maturation benefit from intra-uterine stress that warrants the omission of this effective therapy. Delivery is indicated when the risk for fetal acidaemia and/or stillbirth is high. At early gestation (before 30 weeks), this is the case when the ductus venosus Doppler index elevation escalates beyond 3 standard deviations. Other indicators are absence of movements, anhydramnios, fetal heart rate variation below 3.5 msec, or repetitive shallow FHR deceleration. At later gestation (after 30 weeks) the clinician may well deliver the fetus when UA velocimetry is severely abnormal, or whenever severe CTG abnormalities are present. At any gestational age it is unlikely that clinical decision may be based on abnormality of a single monitoring parameter, as the vast majority of these will usually follow the same deterioration trends. The single most important variable that will critically influence the decision of when to deliver the GR fetus is gestational age. An ongoing study of prenatally identified GR fetuses with elevated placental blood flow resistance suggests that the effect of gestational age overshadows all other perinatal variables until approximately 27.0 weeks, when survival and intact survival first exceed 50%. In a group of over 300 IUGR fetuses delivered before 32 weeks intact survival was observed in 80% of the fetuses delivered after 29 weeks' gestation, suggesting that this may be a time to individualise intervention thresholds. However, the absence of randomised studies on such practice needs to be included as part of multidisciplinary counselling.

It is hoped that the conclusion of the randomised TRUFFLE study (**T**rial of **u**mbilical and **f**etal **f**low in **E**urope) will clarify whether delivery triggered by Doppler versus computerised fetal heart rate analysis has a measurable impact on outcome. Ongoing randomised efforts are necessary to refine our understanding on the relationship between fetal testing variables, intervention and outcomes. Modification of neonatal management based on prenatally available information of fetal status is an almost unexplored avenue to improve outcome.

IDIOPATHIC INFERTILITY

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Reproductive medicine has developed into a fast-growing subspecialty in gynaecology over the past three decades. Information and knowledge have travelled from the sphere of macroscopic surgery to the microscope and probes of geneticists and embryologists. Huge steps forward are made in micrometres, and cellular, enzymatic and hormonal anomalies are the new research fields in the battle against infertility.

Unexplained infertility refers to the absence of a definable cause for a couple's failure to achieve a pregnancy after 12 months of attempting conception despite a thorough evaluation. Authorities vary in their opinion to what constitutes this evaluation, but it is currently accepted to include documentation of ovulation, tubal patency, a normal uterine cavity, adequate ovarian reserve and a normal semen analysis.

Several factors may be responsible for failure to conceive despite absence of identifiable reasons. These include luteal phase defects, immunological and thrombophilic factors, genetic causes, with both chromosomal and single-gene defects of GnRH receptor, FSH receptors, etc. and male-specific Y-chromosome microdeletions.

Treatment of these couples will be discussed, and a second line of investigations for them will be suggested.

PREDICTING CEPHALOPELVIC DISPROPORTION

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Cephalopelvic disproportion (CPD) is the most important cause of obstructed labour. This may result in prolonged labour and fetal distress. In neglected cases, there is an additional risk of infection, postpartum haemorrhage and obstetric fistula. Early prediction or recognition of CPD should make it possible to prevent complications of obstructed labour. On the other hand, a woman in whom CPD is incorrectly predicted may undergo unnecessary caesarean section.

Attempts at antepartum prediction of CPD involve clinical methods or imaging technology. Among clinical methods, only maternal height has been found to be a reliable measurable predictor of obstructed labour. However, most short women (<1.5 m) still give birth normally at term after a trial of labour. Shoe size has not been found to provide any advantage over height. External and internal pelvic assessment have not found favour, because reports of predictive measurements have not been replicated or confirmed in clinical use. Imaging investigations, including X-ray pelvimetry, ultrasound fetal-pelvic index, CT scanning and MRI scanning have similarly not found favour. All these investigations are either not feasible, impractical, or too unreliable to of be use, either as a routine or in women considered to be at risk for CPD.

CPD is best predicted and recognised during labour. This is essentially a clinical activity. The classic dictum that 'the fetal head is the best pelvimeter' drives the current approach of a trial of labour to assess pelvic adequacy. Good labour progress in terms of cervical dilation and head descent generally excludes CPD. In women with poor labour progress, clinical measures such as maternal height, gestational age, estimated fetal weight, presence of sagittal (not lambdoid) moulding and caput succedaneum have been found to be independent predictors of CPD, and may help to distinguish CPD from inadequate uterine activity. This is especially important in multiparas with poor progress, where oxytocin use may be unsafe in the presence of CPD. Imaging technology has not been found to be useful for recognising CPD in labour. Intrapartum ultrasound estimation of fetal weight at term is no better than clinical estimation by guesswork or symphysis-fundal height.

Obstetric clinicians must be aware of the clinical predictors of CPD, and maintain good clinical skills to be able to predict and recognise CPD in a trial of labour. This can prevent complications of both obstructed labour and unnecessary caesarean section.

INDICATIONS, PATHOLOGY AND COMPLICATIONS OF HYSTERECTOMY AT A TERTIARY HOSPITAL IN SOUTH AFRICA

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OBJECTIVE: This study was undertaken to review the relationship between the clinical indication for hysterectomy and the findings at histopathology and to audit the complications of surgery in women accessing care at a large public hospital.

METHODS: A retrospective audit of women undergoing elective hysterectomy between 1 January and 31 December 2007 was conducted. Indications for hysterectomy, details of surgery, postoperative course and 6-week follow-up were documented from the case notes. Histopathology reports were obtained from the National Health Laboratory Service reporting system. Statistical analysis was carried out using SPSS version 17.

RESULTS: Three hundred and forty hysterectomies were performed at Groote Schuur Hospital in 2007. Overall, far fewer women undergoing hysterectomy (N=48, 14.3%) had normal uteri on histopathological assessment than reported in the literature from other countries. Excluding hysterectomies for gender reassignment (N=1) and prolapse (N=38), where the symptoms are not caused by pathology of the uterus, the pre-operative indication for hysterectomy was confirmed on histopathological assessment in 274 out of 296 women (92.5%).

The most common indication for hysterectomy was menorrhagia, related to fibroids in 77 women (23%), followed by abnormal menstrual bleeding in 50 women (15%). No pathology was identified that could account for the symptoms in 11 women with abnormal bleeding and 7 of the 15 women with pelvic pain.

Intra-operative complications occurred in 16 patients, with a 6 times higher risk of a complication during surgery in women undergoing hysterectomy for malignancy (p=0.001). Significantly more postoperative complications occurred after abdominal surgery than vaginal or laparoscopic surgery (p=0.02), and wound sepsis was five times more common in women who were 'overweight' (p<0.001).

CONCLUSIONS: Women present to our gynaecological service with advanced pathology such as large fibroids or ovarian masses, and proportionately more hysterectomies are performed for malignant conditions compared with industrialised countries. Women with defined pathology are more likely to be offered hysterectomy at our hospital because of limited operating time. In view of the type of pathology that we encounter, most hysterectomies are carried out abdominally and these surgeries have a higher incidence of complications.

HIV MEDICATION UPDATE

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HIV is the greatest threat to humankind. The disease has reached pandemic proportion and affects all disciplines and the practice of medicine. There has been a positive move to make antiretroviral medications more accessible to those who need them. This calls for all medical practitioners to become acquainted with these drugs, and to have an understanding of the possible side-effects, how they manifest and how to treat them. A brief discussion on the available drugs relevant for pregnant women and management issues will be presented.

THE MANAGEMENT OF STRESS URINARY INCONTINENCE USING TRANSOBTURATOR TAPES IN A TERTIARY HOSPITAL IN SOUTH AFRICA

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INTRODUCTION: Stress urinary incontinence (SUI) is a distressing condition with social and economic implications affecting up to 20% of women. Surgical treatment remains the most effective therapeutic option. Many surgical procedures have been described for the treatment of SUI. Since 1995, tension-free vaginal tape (TVT) has completely modified the field of surgical treatment of SUI. More than a million TVTs have been inserted worldwide with excellent results. The TVT procedure involves a retropubic approach and has been associated with a number of operative complications, mainly bladder and urethral perforations, haemorrhage and bowel perforations. To avoid such complications, a transobturator approach has been developed. In this method (termed outside-in) the needle passes first through the obturator fossa, and it has been found to be safer.

METHODS: The study included 120 patients referred to the pelvic floor clinic with symptoms of SUI during the period January 2005 - December 2009. They included 4 patients with overflow incontinence who agreed to intermittent self-catheterisation, and 2 patients with mixed urinary incontinence. The age of the patients ranged from 31 to 84 years (mean 55.3 years). Parity ranged from P1 to P6 (mean 2.1). Previous operations included 14 anterior repairs, 18 total abdominal hysterectomies, 10 vaginal hysterectomies and 1 PIVS. All the TOTs were performed at Johannesburg Hospital by the same surgeon, the author. The TOTs were inserted according to the original technique (Delorme, *Prog Urol* 2001;11:1306-1313). Five different transobturator systems were used (IVS – O 98, ARIS 16, Monarc 2, Obtryx 2, Intramesh 2). Additional operations during the TOT procedures included 3 vaginal hysterectomies, 3 laparoscopic-assisted vaginal hysterectomies, 3 posterior IVS, 2 anterior repairs, 4 posterior repairs, 1 removal of IUCD, 2 laparoscopic sterilisations, 2 laparoscopic cystectomies, 1 Fenton's procedure and 1 labial cyst removal.

RESULTS: All cases were successfully completed. On follow-up, the objective cure rates were 96.5%. Operation time ranged from 15 to 80 minutes (mean 39.5 minutes). Operation times for the patients who only had TOTs inserted ranged from 15 to 30 minutes (mean 21.6 minutes). Postoperative hospital stay ranged from 1 to 3 days (mean 2.1 days). Intra-operative complications included 2 bladder perforations and 2 vaginal perforations. Both complications were corrected and the procedure was completed successfully. There were no cases of excessive bleeding and no need for blood transfusion. Follow-up was performed at 6 weeks, 6 months, 1 year, and thereafter yearly. One tape erosion was detected at the 1-year follow-up and removed, and there were 2 failures at the 6-month and 1-year follow-up. New tapes were inserted and the patients were cured. One case of urge incontinence at the 6-week follow-up was treated with anticholinergic drugs.

CONCLUSION: These results show that the TOT is a simple, effective and safe procedure for treating stress urinary incontinence. The procedure is comparable to other surgical techniques using the obturator fossa and avoiding the major risks of the retropubic approach.

ACUPUNCTURE FOR WOMEN WITH REFRACTIVE OVERACTIVE BLADDER SYNDROME IN A RESOURCE-LIMITED SETTING

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BACKGROUND: Overactive bladder syndrome (OAB) is under the spotlight. We now recognise the tremendous number of patients with this problem. The burden on the individual patient and the potential economic impact are staggering.

Public health care in South Africa is economically under-resourced. Treatment modalities for OAB in these settings are limited to bladder training and oral immediate-release oxybutynin. Long-term effectiveness and tolerance are unsatisfactory in some patients. There is currently no alternative therapy available to them.

OBJECTIVES: To evaluate the efficacy of acupuncture in refractive OAB. The primary aim was to evaluate the effect on frequency, nocturia and urge urinary incontinence. The secondary aim was to evaluate the effect of the response on self-perceived quality of life.

PATIENTS AND METHODS: The study was conducted at a specialised urogynaecology unit in a resource-limited setting. In a self-controlled time cohort study, 20 women with OAB who were refractive to standard treatment were recruited. Participants received weekly acupuncture treatments for 4 weeks. Three-day bladder diaries and the King's Health Questionnaire (KHQ) were completed at 3 intervals: at baseline, at week 6, and at 3 months.

RESULTS: There were 22% (p=0.002) and 23% (p=0.002) decreases in frequency, 38% (p=0.004) and 31% (p=0.015) decreases in nocturia, and 20% (p=0.002) and 32% (p=0.0003) decreases in incontinence from baseline to week 6 and 3 months, respectively. On the KHQ both the general domains, General Health and Incontinence Impact, showed significant improvement by 3 months (p=0.002 and 0.009, respectively). All seven lifestyle domains showed significant improvement at week 6 and again at 3 months. Most significant was a decrease in Emotional Limitations (p=0.00004 at week 6 and p=0.000001 at 3 months). The only domain that showed a marginally significant decrease from week 6 to 3 months was Social Limitation (p=0.49).

CONCLUSION: In this study of women with refractive OAB, acupuncture produced significant symptomatic and quality of life improvement.

POSTERIOR AXILLA SLING TRACTION: A DESCRIPTION OF A NEW TECHNIQUE FOR SHOULDER DYSTOCIA

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BACKGROUND: We describe a new method for delivery of intractable shoulder dystocia with posterior axilla sling traction.

CASES: Two cases of shoulder dystocia after intra-uterine death and 3 cases of live birth are described where routine methods of delivery were unsuccessful. In each case, a soft plastic suction catheter was folded in half over the operator's fingertip and digitally inserted around the posterior shoulder, under the axilla, and retrieved with the other hand to create a sling to which traction was applied. The posterior shoulder, followed by the anterior shoulder, was easily delivered.

CONCLUSION: Posterior axilla sling traction may overcome intractable shoulder dystocia and avoid more traumatic procedures in fetal death.

OXYTOCIN AUGMENTATION: POISON OR POTION IN THE MULTIPARA?

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Oxytocin is one of the most commonly used drugs in obstetric practice, but it is also the drug associated with the most preventable adverse events in childbirth. In this review of the literature we look at the use of oxytocin augmentation in the multigravida and the concept of whether the multigravida is different to the primigravida, provide a differential diagnosis for poor progress in the multigravida, and look at the use of the partogram.

Recommended oxytocin regimens are discussed, and we look at how one can measure the effects of oxytocin. We summarise the evidence for the use of oxytocin in augmentation of the multigravida and then provide strategies to avoid problems if oxytocin is used in the multigravid patient. We conclude that the multigravida is very different to the primigravida and that use of oxytocin for augmentation in the multigravida should be strongly discouraged.

If oxytocin augmentation is used in the multigravida, one should seriously consider the risks associated with such use, which include uterine rupture. Use needs to be decided at a senior consultant level, and should only be considered after all other causes of poor progress in the multigravida have been excluded. Continuous fetal monitoring and intra-uterine pressure monitoring are required. Consent, with explanation of all the risks associated with augmentation, should be obtained from the mother before augmentation is initiated. If oxytocin is going to be used for augmentation in the multigravida there

must be a standardised protocol and a doctor on site who is able to perform emergency caesarean section and is available to respond to all emergencies. A low-dose, low-frequency dosing regimen should be used with weaning to the lowest dose necessary to maintain contractions.

MATERNAL POSITION DURING CAESAREAN SECTION FOR PREVENTING MATERNAL AND NEONATAL COMPLICATIONS: A COCHRANE REVIEW

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BACKGROUND: During caesarean section mothers can be in different positions. Theatre tables can be tilted laterally, upwards, downwards or flexed, and wedges or cushions can be used. There is no consensus on the best positioning.

OBJECTIVES: We assessed all available data on positioning of the mother to determine whether there is an ideal position during caesarean section that would improve outcome.

SEARCH METHODS: We searched the Cochrane Pregnancy and Childbirth Group's Trials Register and PubMed, and manually searched the references of retrieved articles.

SELECTION CRITERIA: Randomised trials of women undergoing caesarean section comparing different positions.

DATA COLLECTION AND ANALYSIS: Two authors assessed eligibility and trial quality, and extracted data.

RESULTS: We identified 17 studies with a total of 683 women included. We included 9 and excluded 8. Included trials were of variable quality with small sample sizes. Most comparisons had data from single trials. This is a shortcoming, and applicability of results is limited. The incidence of air embolism was not affected by head-up versus horizontal position. We found no change in hypotensive episodes when comparing left lateral tilt, right lateral tilt and head-down tilt with horizontal positions or full lateral tilt with 15° tilt. Hypotensive episodes were decreased with manual displacers and right lumbar wedge compared with right pelvic wedge, and increased in right versus left lateral tilt. Position did not affect systolic blood pressure when comparing left lateral tilt or head-down tilt with horizontal positions, or full lateral tilt with 15° tilt. Manual displacers showed a decreased fall in mean systolic blood pressure compared with left lateral tilt. Position did not affect diastolic blood pressures when comparing left lateral tilt with horizontal positions. The mean diastolic pressure was lower in head-down tilt when compared with horizontal positions. There were no statistically significant changes in maternal pulse rate, 5-minute Apgar scores, maternal blood pH or cord blood pH.

CONCLUSIONS: There is limited evidence to support or clearly disprove the value of the use of tilting or flexing the table, the use of wedges and cushions or the use of mechanical displacers. Larger studies are needed.

INTRODUCING A QUALITY OF LIFE QUESTIONNAIRE INTO CLINICAL PRACTICE: LESSONS FROM THE LEARNING CURVE

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BACKGROUND: The clinical conditions of pelvic floor dysfunction are never life threatening, but give rise to quality of life issues. The Pelvic Floor Group is a multi-disciplinary group providing several entry points for patients into the therapeutic system, with different assessment techniques and treatment modalities, but clearly with a need to compare eventual clinical outcomes.

METHOD: The recently published Australian pelvic floor questionnaire (*Int Urogynecol J* 2010;21:163-172) is a robust, validated quality of life questionnaire, and can be used for routine clinical assessment and outcomes research. It assesses all pelvic floor symptoms including bladder, bowel and sexual function and prolapse symptoms, and allows meaningful follow-up and assessment of treatment outcomes independent of the entry point health care provider.

RESULTS: Demographic data; When should the questionnaire be administered; Patients' perception of their problems; Scoring templates; Informed consent.

CONCLUSION: Quality of life questionnaires can be integrated into the routine clinical assessment of patients. The self-administered version should be preferred when attempting to assess outcomes independently of health care providers.

IMPACT OF FIBROIDS ON MENSTRUATION AND IMPLANTATION

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Fibroids are present in up to 70% of women of reproductive age. Although many women are asymptomatic, others experience major disruption to daily life. Women frequently complain of heavy menstrual bleeding (HMB; menorrhagia) and severe anaemia. No approved long-term medical therapy exists, and surgery (hysterectomy or myomectomy) is often inevitable for women with symptoms. Uterine artery embolisation (UAE) is a safe and effective management option for women with fibroids and HMB, but cost-effectiveness is lost by 5 years due to re-intervention with symptom recurrence. Recurrence rate is lower than with myomectomy. The levonorgestrel-releasing intra-uterine system (LNG-IUS) is highly effective for HMB, but may fail if the uterine cavity is markedly enlarged or distorted by fibroids. GnRH (gonadotrophin-releasing hormone) analogues will reduce the size of fibroids by around 30%. This is a short-term or pre-operative option for management, as prolonged use leads to bone loss due to ovarian suppression.

The impact of uterine fibroids upon fertility and embryo implantation remains unclear. Submucosal fibroids are associated with poor reproductive outcome and may influence endometrial gene expression, thereby disrupting endometrial receptivity. Hysteroscopic myomectomy is the standard minimally invasive surgical procedure for treating submucosal fibroids. It is safe, effective and avoids opening the uterine cavity. The clinical utility of progesterone receptor modulators (PRMs) in women with fibroids is currently under investigation. PRMs reduce menstrual bleeding and fibroid volume. Amenorrhoea/marked reduction in bleeding and other health benefits (less pain and anaemia) are reported with this therapeutic approach. The mechanisms of suppression of menstrual bleeding with PR modulators are not yet determined.

Study of the impact of fibroids on the pivotal events in reproduction – implantation and menstruation – will remain complex owing to marked variations in location, size and number of fibroids and confounding additional factors involved in the regulation of menstrual bleeding and successful implantation. There remains an unmet need for a pharmacological agent that would result in fibroid shrinkage and reduce menstrual bleeding whilst maintaining fertility and oestrogenic state. The ideal treatment would be minimally invasive and cost effective, and have minimal side-effects and a low incidence of fibroid recurrence.

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ROLE OF INTRA-UTERINE DELIVERY OF AGENTS MODULATING ENDOMETRIAL FUNCTION

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One of the most versatile forms of a long-acting reversible method of contraception (LARC) is the levonorgestrel-releasing intra-uterine system (LNG-IUS). The LNG-IUS is an extremely effective contraceptive with many non-contraceptive health benefits (reduced menstrual bleeding, less anaemia, less dysmenorrhoea, and endometrial protection for women on oestrogen replacement therapy). Worldwide, the cumulative number of women using the LNG-IUS is now over 9 million. Women with endometriosis, fibroids, adenomyosis and endometrial hyperplasia may also benefit from use of the LNG-IUS. The intra-uterine administration of LNG results in rapid and profound effects on endometrial morphology and function, with extensive decidualisation of the endometrial stromal cells, atrophy of the glandular and surface epithelium and changes in vascular morphology. Intra-uterine release of other compounds with marked effects on endometrial morphology and function is also feasible (e.g. progesterone receptor modulators). Cost-effectiveness and improvement in quality of life in women using the LNG-IUS compared with women undergoing hysterectomy for menstrual complaints has been reported. During the perimenopausal transition, the LNG-IUS offers a combination of contraception as well as treatment of cycle irregularities and heavy bleeding. If hormone replacement therapy (HRT) is considered for management of severe menopausal symptoms the LNG-IUS is licensed to protect the endometrium as the progestin component of HRT in over 90 countries worldwide. Benefits have to be weighed against the complaint of unscheduled bleeding; 1 in 5 women will discontinue use of progestin therapies (systemic and locally delivered) for this reason. The pathogenesis of unscheduled bleeding with progestin-only contraception remains ill-defined despite extensive research in this area over the past decade. Effective interventions to ameliorate unacceptable bleeding for women using long-acting progestogen contraception therefore remain elusive.

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OPTIONS FOR MANAGEMENT OF MENSTRUAL DYSFUNCTION

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Menstrual complaints have a negative impact on quality of life and productivity, causing significant morbidity in women of reproductive age. Simple terminologies should be used for description of symptoms, signs and causes of abnormal uterine bleeding. Heavy menstrual bleeding (HMB; menorrhagia) is the complaint of unacceptable and heavy bleeding and the symptom of HMB has a heterogeneous aetiology. Women with fibroids and endometriosis may complain of HMB. Aberrations in coagulation may contribute to heavy bleeding. Where there is no associated pathology, heavy bleeding may reflect disturbances in regulation of local mediators within the endometrium. HMB affects 1 in 3 women of reproductive age (*NICE Guideline* 44; 2007; www.nice.org.uk). Popular drugs used to treat HMB are tranexamic acid and mefenamic acid (administered during menstruation). Current medical therapy may however be associated with undesirable side-effects, so management typically involves invasive surgery. HMB remains a leading indication for hysterectomy. The levonorgestrel-releasing intra-uterine system (LNG-IUS) is an excellent alternative to surgery for women with HMB who also seek reliable long-acting reversible contraception. Up to 1 in 5 women will discontinue use of progestin therapies (systemic and locally delivered) for HMB on account of unscheduled bleeding. Interventions to ameliorate unscheduled bleeding remain elusive. Uterine artery embolisation (UAE) is a safe and effective treatment option for women with fibroids and HMB. Recovery time is quick, but cost-effectiveness is lost by 5 years due to re-intervention with symptom recurrence. The recurrence rate is lower than with myomectomy and outcome of subsequent pregnancy is unknown. Progesterone receptor modulators (PRMs) are a therapeutic approach currently under investigation. PRMs reduce menstrual bleeding and, if present, fibroid volume. These compounds offer the option of amenorrhoea and provide added health benefits (less bleeding, pain and anaemia). However, use remains controversial. No pre-malignant changes have been reported in response to treatment with PRMs. The unique morphological features demonstrated in the endometrium following administration of PRMs are recognised. It remains essential to understand mechanisms involved in control of endometrial bleeding if effective medical treatment strategies are to be developed as alternatives to surgery for benign menstrual complaints.

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A NEW TECHNIQUE OF SURGERY FOR RECTOCELE

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INTRODUCTION: The classic method of rectocele repair is excision of excessive vaginal wall with levator or fascia plication. In this presentation a new method is described: plication of the rectocele with or without perineal body repair.

OBJECTIVE: To describe the technique and results of plication of a rectocele.

METHODS: The urogynaecological database of Universitas Hospital was searched for plication of a rectocele (with or without perineal body repair). Exclusion criteria included the use of any type of mesh. The time frame was 1 January - 31 December 2009.

RESULTS: Twenty-nine patients were identified, with

a median age of 54 years and a median parity of 3. Pre-operative complaints included constipation (59%), obstructive defecation (62%), anal incontinence (21%) and anal soiling (4%). All patients presented with a rectocele (9 stage 2 (31%), 17 stage 3 (59%) and 3 stage 4 (10%)), and 27 patients (93%) also had a perineal body defect. A plication of the rectocele was done on all patients and 28 (97%) also received perineal body repair. Other additional procedures (not related to rectocele) were done in 11 patients (38%).

Follow-up was done in 26 patients (90%) with a mean of 3.3 months (median 3 months). In these 26 patients, the following postoperative complaints were recorded: constipation (31%) and obstructive defecation (8%). There were no cases with dyspareunia. There was one case of persistent rectocele (stage 1) and one of perineal body defect (both 4%). One patient (4%) was re-operated for prolapse (abdominal sacrocolpopexy).

CONCLUSION: Plication is a simple, safe and effective surgical treatment of rectocele.

WHAT IS NEW IN VAULT PROLAPSE?

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OBJECTIVE: To critically review the current methods of vault prolapse repair and propose possible improvements.

METHODS: Review of the literature as well as local experience with prolapse against the background of the surgical anatomy of the pelvis.

RESULTS: The cornerstone of the repair of vault prolapse is fixation of the vault to a structure in the pelvis at a level higher than the vault. Three structures are utilised: the sacrospinous ligaments (SSL), remnants of the uterosacral ligaments (USL) and the anterior longitudinal ligament of the sacrum (ALLS). The SSL is actually at a level lower than the vault (and more posteriorly), the USL is usually very atrophic and retracted, while the ALLS is strong, fairly well aligned to the vaginal axis and well above the vault. Abdominal sacrocolpopexy (ASC), which uses the ALLS as point of suspension, is therefore the most effective method of treatment for vault prolapse. Other methods that will be discussed briefly are the McCall's culdoplasty and Lefort's colpocleisis.

CONCLUSION: ASC is the preferred method of repair of vault prolapse. If that is not possible, the vault should be suspended to either the SSL or USL remnants, usually with the addition of mesh.

THE CURRENT PLACE AND FUTURE HOME OF UROGYNAECOLOGY

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Urogynaecology (UG) used to deal with pelvic organ prolapse (POP) and urinary incontinence in the female. Gradually, bowel problems and quality of life (QOL) issues were added, leading to a movement in medicine called 'pelvic floor reconstructive surgery' (PFRS). PFRS went through a rapid phase of development over the past decade, creating significant interest among role players.

CURRENT PLACE: The role players in UG (or PFRS) are obstetrics and gynaecology (O&G), urology and surgery, supported mainly by physiotherapy. Postgraduate training in O&G covers 4 years, of which at least 2 years are spent in obstetrics. Exposure to UG rarely extends to more than 6 months. Consequently, gynaecologists were slow in adopting the new surgical procedures in PFRS, and urologists and surgeons are consulted more than in the past to help with the repair of pelvic floor defects. Recently several urologists moved into the field of PFRS, covering all three pelvic compartments.

FUTURE HOME: O&G should drastically improve its postgraduate training in PFRS, otherwise urology will replace us. A 5-year training programme should be strongly considered for more adequate exposure to gynaecological surgery with emphasis on PFRS. Subspecialisation in UG must become a reality in O&G to raise the standards. Governing bodies such as the College of O&G and SASOG must acknowledge these needs and actively support the improvement of standards in UG.

CONCLUSION: There are no established fences in UG. We must strengthen ourselves, or others will replace us. The breast is such an example. Drastic action from the side of O&G is urgently needed if we want to maintain our position as the most important role player in UG/PFRS.

WE ARE NOT THE PERFECT MACHINE – THE HUMAN FACTOR AT WORK

Mr Trevor Dale
British Airways training captain (retired), Co-Founder and Commercial Director of Atrainability. Presenting on behalf of the Medical Protection Society

In high-reliability organisations it has long been recognised that human error is the most likely root cause of unsafe outcomes or indeed disasters. Industries such as nuclear power generation, rail, marine and aviation all put measures to counter human fallibility in place. In this session Trevor Dale, human factors expert from health care and aviation, will demonstrate how we are all vulnerable to the limitations of the human brain. He will also offer some proven practical tools now becoming accepted into everyday use in operating theatres and clinical use worldwide to gain and maintain high levels of patient safety.

THE ACCURACY OF NON-INVASIVE COMPARED WITH INVASIVE BLOOD PRESSURE MONITORING IN PATIENTS WITH SEVERE PRE-ECLAMPSIA DURING A HYPERTENSIVE CRISIS

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OBJECTIVE: This study aimed to compare the accuracy of non-invasive blood pressure (BP) measurements, using automated and manual devices, against invasive intra-arterial blood pressure measurements in patients with pre-eclampsia, during a hypertensive BP peak.

STUDY DESIGN: Women admitted to the Obstetrics Critical Care Unit with confirmed pre-eclampsia and acute severe hypertension, with an intra-arterial line *in situ*, participated in this prospective study. During an intra-arterial BP peak, an automated oscillometric and a blinded manual aneroid sphygmomanometric BP were recorded. These two methods were compared with intra-arterial BP measurements. The accuracy of a mean arterial pressure (MAP) ≥125 mmHg in detecting a systolic blood pressure (SBP) ≥160 mmHg, using all three methods, was also determined.

RESULTS: There was poor correlation between intra-arterial SBP and automated and manual SBP (r=0.34, p<0.01; r=0.41, p<0.01, respectively). The mean differences between automated and manual SBP compared with intra-arterial SBP were 24±17 mmHg (p<0.01) and 20±15 mmHg (p<0.01), respectively. There was better correlation between intra-arterial diastolic blood pressure (DBP) and automated and manual DBP (r=0.61, p<0.01; r=0.59, p<0.01, respectively). There was poor correlation between the intra-arterial MAP and the automated MAP (r=0.44, p<0.01) and good correlation with the manual MAP (r=0.56, p<0.01). The mean differences between the automated and manual MAP were statistically significant (5±13 mmHg, p<0.01; 8±11 mmHg, p<0.01, respectively). The sensitivities of automated and manual methods in detecting a SBP ≥160 mmHg were 23.4% and

37.5%, respectively. A MAP ≥125 mmHg in detecting an SBP ≥160 mmHg when using all three methods of blood pressure measurement showed low sensitivity.

CONCLUSION: Both the automated and manual methods of BP measurement were not an accurate measure of true systolic intra-arterial BP when managing pre-eclamptic patients with acute severe hypertension. In such situations, intra-arterial BP monitoring should be used. When this is not possible, manual aneroid sphygmomanometry is recommended.

ENDOMETRIOSIS SEEN BEFORE 20 YEARS OF AGE

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Endometriosis is a disease that affects women in their reproductive years, and this includes adolescents. It remains a perplexing disease and can result in pelvic pain, dysmenorrhoea and sub-fertility. Endometriosis in this group of patients is not as infrequent as one may think. There is still a great delay in confirming the diagnosis from the time of initial symptoms. Most women with endometriosis report symptoms starting in adolescence. The typical presenting symptom is that of progressive dysmenorrhoea. Clinical findings are usually different to those in older patients, as adolescents usually (but not always) present with less severe forms of the disease. If standard therapy does not resolve symptoms in 3 months, further evaluation for endometriosis is indicated. Early diagnosis and optimal individual treatment may mitigate long-term morbidities.

PRE-OPERATIVE IMAGING FOR ENDOMETRIOSIS

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To assess gynaecologists' practice with regard to imaging prior to endometriosis surgery, an email survey of SASOG members was undertaken; 42 specialists responded, all of whom do ultrasound scans pre-operatively. Only 12 practitioners consider an MRI useful, specifically if a rectovaginal nodule is present, if a large endometrioma is suspected, or if malignancy is a possibility, and 48% of doctors would do a CT scan in the presence of renal tract involvement.

Only 20% of specialists would do IVPs or BA enemas if bowel or urinary symptoms were suspected. The approach is widely variable, and depends on the surgeon's level of skill, availability of special investigations, degree of expertise and even level of interest. The approach of most general gynaecologists is to begin with ultrasound and progress from there. Few radiologists are experienced in interpretation of imaging for advanced endometriosis, and for this reason some practitioners adopt a combined surgical approach. In academic circles abroad special investigations including MRI are the norm, but in this country the radiologists lack interpretative skills.

THE PLACE OF LAVH

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SASOG members were surveyed to assess attitudes to the place of laparoscopically assisted vaginal hysterectomy (LAVH), the laparoscopic separation of one or more uterine pedicles prior to vaginal removal of the uterus. 40 responses were received.

1. Do you perform LAVH procedures?

Half of those surveyed perform LAVH operations themselves.

2. Do you consider LAVH to have a place in gynaecological practice?

The vast majority – 92% – see a place for LAVH in their practice and recognise the usefulness of this procedure, for example for assisting the process of oophorectomy.

3. Do you think LAVH is preferable to TAH?

60% felt this is to be the case – of concern is that 40% felt TAH to be preferable, despite evidence that a vaginal approach is generally considered superior to laparotomy.

4. Do you think TLH or LASH are preferable to LAVH?

TLH (laparoscopic hysterectomy) or LASH (laparoscopic supercervical hysterectomy) are seldom done; 82% suggested that they were not preferable to LAVH.

The majority of responses were in the line with international norms, but a few gynaecologists adopt a hard-line approach of avoiding LAVH. The general consensus is that LAVH is preferable to TAH, but a simple standard vaginal hysterectomy is still the best option, if possible.

INTRAVENOUS BISPHOSPHONATES

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The bisphosphonates were discovered 40 years ago and are still a major player in the fields of osteoporosis and oncology. Although oral bisphosphonates are effective in the prevention of osteoporotic fractures in dosages that are reasonably well tolerated, the need for intravenous (IV) therapy is based on poor compliance to oral therapy and the need for higher dosages in oncology that are not tolerated by the oral route. The pharmacokinetic properties of the following three bisphosphonates make intravenous use possible: palmidronate, ibandronate and zoledronic acid.

Pamidronate is a second-generation bisphosphonate indicated in the treatment of hypercalcaemia and Paget's disease. Although known to preserve BMD, it has not been studied in the prevention of osteoporotic fractures. Ibandronate has been extensively studied in the prevention of osteoporotic fractures. It proved to be ineffective at 2 mg IV every 3 months but effective at 3 mg every 3 months. This illustrates the critical interaction between dosage and therapeutic interval. Zoledronic acid (third-generation bisphosphonate) is registered for the treatment of hypercalcaemia, the prevention of osteoporotic fractures (HORIZON-trial), the treatment of Paget's disease, male osteoporosis and glucocorticoid-induced osteoporosis. Although zoledronic acid at a dosage of 4 mg IV 6-monthly has been associated with a 35% increase in disease-free survival after surgical treatment of breast cancer, the routine use for this indication remains controversial. A further complicating factor is the association between the higher IV dosages and osteonecrosis of the jaw and atypical femur shaft fractures.

In spite of these potential complications, the author feels that IV bisphosphonates will play an important part in the battle against osteoporosis.

SERMS

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The concept of the SERMs has been very promising as a major therapeutic modality in menopausal medicine. The aim is to optimise the oestrogen receptor agonist/antagonist activity in target tissues to prevent bone loss, offer cardiovascular protection and prevent breast cancer without causing hot flushes. The second-generation SERM, raloxifene, has been studied extensively. The development of three third-generation SERMs has recently been completed.

The first available SERM, raloxifene, prevents clinical and morphometric vertebral fractures in patients with osteoporosis, but evidence that it prevents non-vertebral fractures is lacking. Raloxifene failed to significantly reduce the risk of coronary arterial disease (CAD) in a large RCT, while significantly increasing the incidence of fatal stroke and VTE. Raloxifene prevents oestrogen receptor-positive breast cancer in patients with osteoporosis.

Arzoxifene, a third-generation SERM, was evaluated in the GENERATIONS study, a double-blind randomised, placebo-controlled, phase 3 study to determine the efficacy of arzoxifene to reduce the incidence of vertebral fractures and invasive breast cancer incidence in postmenopausal women with osteoporosis or low bone density. Although the primary endpoints were met, the study was terminated after it was established that arzoxifene did not reduce non-vertebral fractures.

Lasofoxifene, also a new third-generation SERM, was evaluated in the PEARL trial. Lasofoxifene reduced the risk of vertebral and vertebral fractures compared with placebo in patients with osteoporosis. Lasofoxifene also reduced the risk of cardiac events and stroke, while the risk of DVT remained in line with other SERMs. These results will need to be confirmed in a study with primary cardiovascular endpoints. Lasofoxifene causes endometrial thickening without endometrial hypertrophy. It has a neutral effect on the breast. Lasofoxifene still awaits FDA approval.

Bazedoxifene (BZA), a third-generation SERM, is still under development but 5-year data reveal that BZA reduces vertebral fracture risk compared with placebo, and non-vertebral risk in a subset of patients regarded as at high risk of fracture. The other effects of BZA are not much different from raloxifene.

A novel approach to menopausal therapy is the tissue-selective oestrogen complex (TSEC), which partners bazedoxifene with conjugated oestrogen. The first TSEC has been shown to significantly increase bone mineral density and to improve vasomotor symptoms and measures of vulvar/vaginal atrophy, while ensuring endometrial and breast safety in postmenopausal women with a uterus.

As there are no new SERMs in development, it seems that SERMs as monotherapy will continue to be a useful option in the prevention and treatment of osteoporosis and combination therapy. TSEC may have a major role as a replacement for progestins in combination hormone replacement therapy.

CONTRIBUTION OF TRANSPERINEAL ULTRASOUND

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The assessment of female urinary incontinence and pelvic organ prolapse has to date been limited to urodynamic testing and the clinical evaluation of surface anatomy. It is becoming increasingly clear that such an approach is insufficient. This is mainly due to the realisation that pelvic floor trauma in labour is common, generally overlooked, and a major factor in the causation of pelvic organ prolapse. Modern imaging methods such as magnetic resonance and 3D ultrasound have enabled us to diagnose such abnormalities reliably and accurately, most commonly in the form of an avulsion of the puborectalis muscle off its insertion on the os pubis. However, ultrasound has a number of other advantages in the assessment of pelvic organ prolapse, most notably in the differential diagnosis of posterior compartment prolapse, which can be due to at least five different conditions. Imaging also has great utility in the assessment of modern sling and mesh implants, and in women with symptoms of obstructed defecation.

In this talk I will try to summarise the methodology of pelvic floor assessment by translabial ultrasound, and to describe the commonest findings and abnormalities and their consequences.

UROGYNAECOLOGY: COMBINED CLINICAL AND IMAGING SKILLS TOWARDS BETTER DIAGNOSIS AND MANAGEMENT

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The greatest utility of imaging in clinical diagnostics may be that it allows us to improve clinical assessment skills. This is very obvious in urogynaecology, a field that, judging from the suboptimal outcomes recorded for prolapse surgery, could do with improved diagnostic skills. Imaging can enhance our examination skills for the assessment of the anterior compartment by helping us identify levator trauma, by distinguishing cystocele and cysto-urethrocele, and by detecting urethral diverticula. In the posterior compartment imaging allows us to distinguish between rectocele, enterocele and rectal intussusception. After suburethral slings it helps identify implants that are too tight or too loose, those that have been placed in an unusual location, or those eroding into the urethra. After mesh placement for prolapse surgery one may detect recurrence due to dislodgement of anchoring arms, or due to dislodgement of mesh from underlying tissues (in the case of recurrence anterior to a transobturator mesh) or from the vagina (e.g. in patients with recto-enterocele recurrence posterior to a posterior vaginal wall mesh). In most instances the clinican will be able to detect these findings on clinical examination – even rectal intussusception or dislodgment of sling arms – once he/she has been alerted to such conditions through imaging feedback.

SCREENING TESTS IN RECURRENT PREGNANCY LOSS

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Recurrent pregnancy loss (RPL) is one of the most frustrating and difficult areas in reproductive medicine because the aetiology is often unknown and there are few evidence-based diagnostic and treatment strategies. Early pregnancy loss, especially when recurrent, is an emotionally traumatic experience for the patient and her partner, similar to that associated with stillbirth or neonatal death.

The World Health Organization defines a miscarriage as a pregnancy that did not progress beyond 20 weeks of gestation or a fetal weight of 500 g. Recurrent pregnancy losses are seen as three or more miscarriages, but further investigations are warranted if there is one loss during or after the second trimester. These can occur as consecutive events, following or alternating with pregnancies progressing beyond 20 weeks or weight of 500 g.

The number of previous miscarriages appears to be the strongest prognostic factor for poor outcome, even after adjustment for other risk factors. The impact of maternal age is modest until after 40 years, when it becomes the most important risk factor.

Factors that need to be investigated in these patients include prothrombotic state, reproductive immunology, endocrinology, and genetics. Advances in these fields have enabled a more multidisciplinary approach to studying and training couples with recurrent miscarriages.

Screening for RPL is difficult before an index pregnancy. Age of the mother, a history suggestive of thrombophilia, underlying medical conditions (e.g. diabetes mellitus, thyroid disease, polycystic ovary syndrome, hyperprolactinaemia), uterine abnormalities (congenital or acquired) and lifestyle factors can be diagnosed and addressed pre-conception.

The evaluation of patients with a history of RPL includes the abovementioned conditions as well as karyotyping, and screening for antiphospholipid syndrome.

RPL causes can be multifactorial, so the evaluation of these patients should not end once a single factor is identified. The psychological impact must never be underestimated, and couples affected by RPL need continuous support. The high chance of a successful pregnancy in couples with no identifiable cause for recurrent miscarriage coupled with the paucity of data from randomised trials mean that clinicians should resist the use of empirical treatments that might deliver no benefit or even cause harm. Instead, patients with recurrent miscarriage should be recruited to adequately powered placebo-controlled studies, especially as several studies have shown the value of psychological support in improving pregnancy outcome.

LAPAROSCOPIC APPROACH TO PELVIC ORGAN PROLAPSE: A FEASIBILITY ANALYSIS OF 40 CASES

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INTRODUCTION: A laparoscopic approach to pelvic organ prolapse (POP) offers the advantage of quicker postoperative recovery. This benefit needs to be assessed against the offset of prolonged theatre time, costs and eventual outcome. POP compromises quality of life and occurs in older women with concurrent age-related medical co-morbidities. These factors impact on the type and technique of surgery offered to this group.

METHODS AND MATERIALS: A total of 40 patients were managed laparoscopically over an 18-month period. The mean age of the study group was 57 years (range 45 - 93 years). The majority presented with a previous history of prolapse surgery, including 6 cases with synthetic mesh erosion and recurrence of prolapse. Co-morbidity such as hypertension and diabetes mellitus were present in 15% of cases. Surgical interventions included sacrocolpopexy (20 cases) and Burch colposuspension (24 cases). The mean theatre time was 125 minutes and mean hospitalisation was 5 days. Postoperative complications included urinary tract infections (2 cases) and pulmonary embolus (1 case). At follow-up symptomatic relief could be documented in 96% of cases. Repeat prolapse surgery (anterior repair) was required in 2 cases. Conversion to laparotomy was done in 1 case due to dense bowel adhesions.

CONCLUSION: A laparoscopic approach to POP is feasible and yields comparable results to conventional open techniques.

POSTPARTUM HAEMORRHAGE

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Obstetric haemorrhage is a major cause of maternal mortality in under-resourced countries, and of severe acute maternal morbidity in well-resourced settings. It is a condition that severely tests the health system since effective management must be available at the first point of contact, usually the district hospital.

In South Africa, a middle-income country, obstetric haemorrhage accounted for 491 reported deaths during 2005 - 2007 (4th Saving Mothers SA report). This gives an obstetric haemorrhage maternal mortality ratio (MMR) of 18.8/100 000 live births compared with an MMR of 0.8 in the most recent UK 2003 - 2005 confidential enquiry report. In SA, 43% of all deaths from postpartum haemorrhage (PPH) occurred at district hospitals and many died during transfer.

The 491 deaths were due to conditions that can either be prevented or treated with existing medical knowledge: retained placenta (17.9%), uterine atony (13.6%), ruptured uterus with and without previous caesarean section (16.3%), bleeding associated with difficult caesarean section (20.4%), and abruptio placentae (9.8%).

Of concern is the finding that 69 - 80% of these deaths were judged to be *clearly avoidable* according to expert assessors. While a few patients had problems accessing facilities, the most common problems related to (*a*) substandard care by health workers, and (*b*) major deficiencies in the administration of facilities such as non-availability of emergency blood, emergency transport and functioning theatres, and lack of adequate staff to monitor patients. With regard to health workers, a serious lack of skills was identified for both resuscitation and practical obstetric/surgical procedures, particularly at district hospitals. Only 72 (14.7%) of the 491 women who died had a hysterectomy. This situation presents an enormous challenge to midwives, doctors, obstetricians and health managers.

Training in standard obstetric management (prevention of anaemia, prevention of obstructed labour, active management of the third stage of labour, medical treatment of uterine atony) and obstetric surgical skills (manual removal of placenta, bimanual compression, etc.) needs to be directed not only at registrars in academic centres, but also to those doctors (notably community service medical officers and interns) and advanced midwives who will staff district hospitals. 'Fire-drills' for resuscitation and PPH management need to be practised.

Recently developed treatment modalities such as uterine balloon tamponade and uterine compression suture could make an enormous contribution if taught to practitioners at district hospitals. There is a need to improve surgical skills for dealing with complicated caesarean section with techniques such as uterine vessel ligation and subtotal hysterectomy. The ESMOE training package, focusing on resuscitation and practical emergency obstetric skills, is a forum through which specialist obstetricians could participate in skills training, and thus help reduce preventable deaths from obstetric haemorrhage. Posters with step-by-step algorithms for PPH management and a pocket-sized monograph on 'Management of PPH' have recently been produced by the NCCEMD and are in the process of dissemination.

It is important to examine why, despite knowledge on how to prevent and manage postpartum haemorrhage, deaths from this cause are not decreasing in South Africa. The challenge is to translate knowledge and protocols into effective actions at all levels of care, as well as to address factors beyond the health sector.

A community focus for PPH in South Africa is currently lacking. In many poorly resourced countries there are high proportions of home deliveries, often with unskilled birth attendants. PPH is a major contributor to mortality at this level. In South Africa there is a need to investigate this aspect further and also promote community involvement through education, mobilisation, and dialogue with traditional birth attendants and community leaders.

Attempts to reduce deaths from PPH must also focus on the socio-economic and political determinants of inequities in health experience. Poverty, poor educational opportunities, lack of female empowerment and inequitably distributed health facilities are all factors not currently investigated by the NCCEMD process that are barriers to reducing deaths from PPH.

INTEGRATED SCREENING FOR CHROMOSOMAL ABNORMALITIES

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Screening for chromosomal abnormalities was introduced in South Africa when karyotyping on amniocytes became available in 1969. Aneuploidy prevention was prioritised by the Department of Health (2001), but the current live birth prevalence of trisomy 21 (T21) in SA exceeds that in countries with effective screening strategies and the SA programme has, from the outset, been non-representative of the population's ethnic and socio-economic diversity.

The sustainability of maternal age-based screening is highly questionable owing to its poor efficacy and efficiency, and international efforts to improve screening performance saw the introduction of second-trimester serum screening in SA in the mid-90s, nuchal translucency screening in 1998 and first-trimester serum screening in 2002, closely following trends in affluent countries. Detection rates between 65% and 90% with 95% specificity are widely accepted when these tests are used alone or in combination, but in the SA private sector, where these methods are available, age has remained the main indication for karyotyping and only 39% of T21 cases are detected prenatally (2008). This highlights the urgent need for better implementation of existing screening strategies, as proposed by SASUOG, rather than a search for new aneuploidy markers.

In the public sector, maternal age as a nationally accepted screening strategy has clearly failed since only a small fraction of older women access tertiary services for genetic counselling. Although partly due to patient-related factors, this appears to be caused mainly by poor communication and poor referral by staff and numerous barriers to access, resulting in a dismal prenatal detection rate (only 7% of T21 in 2008). Karyotyping for abnormal ultrasound findings improves the prenatal detection rate of aneuploidies in areas where obstetric ultrasound services are widely available and may be the way forward for the public sector. A rational roll-out of ultrasound services, as being explored in the Western Cape, may to a large extent reduce the inequities in access to prenatal diagnostic services.

Both in the private and public sectors, however, research is needed into parents' wishes and attitudes and all efforts should be made to enable parents to reach truly informed decisions.

THE VALIDATION OF A QUALITY OF LIFE QUESTIONNAIRE FOR THE ASSESSMENT OF ANAL INCONTINENCE IN A SOUTH AFRICAN POSTPARTUM POPULATION

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Anal incontinence (AI) is emotionally distressing and embarrassing, and may not be disclosed postpartum owing to the sensitive nature of the subject. A self-administered questionnaire that is simple, easy to understand and addresses this problem is an invaluable tool. Currently no published, validated symptom- and health-related quality of life (QOL) questionnaire specific to postpartum AI is available in South Africa. We therefore undertook the process of creating and validating a QOL questionnaire for postpartum AI.

METHODS: The study was conducted at Grey's Hospital, Pietermaritzburg, KwaZulu-Natal. The questionnaire was adapted from previously validated bowel diseases questionnaires for the postpartum AI population. Content validity was established through cognitive debriefing of 15 patients with AI, and reviews by expert clinicians and physiotherapists. Pre-test for ambiguity and ease of comprehension was achieved using 15 patients and 20 midwives on postnatal wards.

The correlation of the scales in the AI questionnaire with selected subscales in the Sexual Function and Influence of Urinary Incontinence Questionnaire (SF-IUIQ) was analysed to evaluate construct validity. 40 women with AI were used to test the final version for test-retest reliability, internal consistency, face, content and construct validity and acceptability. The test-retest phase was performed within 2 weeks of the initial visit.

RESULTS: The final questionnaire (Grey's Hospital QOL questionnaire for postpartum anal incontinence) consists of 9 symptom- and 28 health-related quality of life questions with four subscales. For the index question on AI, i.e. Q1, the K and weighted K value was 1.000. Reliability was found to be 0.973 with Cronbach's α, hence demonstrating good internal consistency. There was 100% agreement in 16 out of 37 questions (43.4%). In the SF-IUIQ questionnaire there was 100% overall agreement except for UI-Q3 which had an agreement of 97.50% (kappa of 0.955 and 0.977). Moderate to strong agreement was demonstrated in terms of construct validity when scales were compared with another validated SA questionnaire, i.e. the SF-IUIQ.

CONCLUSION: The Grey's Hospital QOL questionnaire for postpartum AI is a clinically relevant, simple to interpret screening tool and would prove useful in the assessment of postpartum AI.

CALCIUM: A COSTLY MYTH?

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The impact of calcium supplementation in the management of osteoporosis can be ascertained by elaborating upon the effects of calcium and vitamin D on three aspects of bone status, namely, peak bone mass attainment, age-related bone loss and fracture risk. The data are conflicting, although both randomised double-blind, placebo-controlled intervention trials and meta-analyses have concluded that calcium supplementation increases gain in bone mass. A review of 19 calcium intervention studies concluded that calcium slowed or stopped age-related bone mass in 16 of the 19 studies, while a recent review has suggested that calcium combined with either exercise or oestrogen has additive effects. There are also substantive data, including a recent Cochrane review, showing that the combination of calcium and vitamin D is associated with a 15 - 25% reduction in hip fracture.

Clearly the effect of calcium and vitamin D on fracture prevention is complex and influenced by many factors. Of importance, however, is the concept that calcium supplementation must always be accompanied by appropriate doses of vitamin D. All these factors will be discussed in the presentation, supporting that calcium is not a costly myth.

ANYTHING NEW ON ABRUPTIO PLACENTAE?

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Abruptio placentae is defined as the partial or complete separation of a normally implanted placenta from the uterine wall, before delivery, after the 20th week of pregnancy. The incidence ranges from 0.40% to 1.8%. Recent publications indicate that the peak rate of abruption occurs between 24 - 27 weeks' gestation and that the overall frequency is increasing. Current evidence suggests that abruptio placentae is often the final dramatic expression of a chronic placental disorder. The final key factor in the pathophysiology is haemorrhage at the decidual-placental interface. Small episodes may escape clinical detection, but severe grades impact significantly on fetal and maternal morbidity and mortality, with the most frequent complications being fetal death, severe maternal shock, disseminated intravascular coagulation and renal failure. A useful predictive test is still needed to detect vulnerable pregnant women. Important clinical risk factors for the development of abruptio placentae are previous abruption, hypertensive diseases, abdominal trauma, growth restriction and smoking. Maternal body weight is a new addition to

this list. Although several biomarkers have been evaluated, the results have generally been disappointing. However, iron, folate and angiogenic factors may change this situation. The diagnosis is essentially made on the clinical picture, which includes vaginal bleeding (usually dark blood), abdominal pain and uterine contractions. The essence of management is restoration of circulating volume followed by delivery of the fetus and placenta, most often by caesarean section when the diagnosis is clear and the fetus is alive and viable. Aggressive resuscitation and expeditious vaginal delivery are the goals when the fetus is dead.

ANTERIOR PROLIFT OR AVAULTA FOR THE SURGICAL TREATMENT OF LARGE CYSTOCELES

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OBJECTIVE: To evaluate the results of the use of mesh (Prolift, Johnson & Johnson; Avaulta, Bard Medical) in the surgical treatment of large cystoceles.

METHODS: Patient records for 2008 and 2009 were reviewed, with a total of 26 patients.

RESULTS: Of the 26 patients, 14 were treated with Prolift and 12 with Avaulta. The median age was 63 years and median parity 3. Of the patients 54% had had previous surgery for pelvic organ prolapse. Most of the cystoceles (81%) were stage 3 and 19% were stage 2. The most common other form of associated prolapse was rectocele (77% of the patients). Subsequently 73% of the patients had additional surgical procedures during Prolift/Avaulta placement. Twenty-four patients (92%) were followed up for a median period of 4.5 months. Overactive bladder symptoms decreased from 46% to 41%, but repeat cystoceles occurred in 13% of the patients and any type of recurrent prolapse in 21%.

CONCLUSION: Vaginal mesh placement (Prolift/Avaulta) for large cystoceles was moderately effective.

DOES BILATERAL VAGINAL SACROSPINOUS FIXATION AMPLIFY PROLAPSE OF THE ANTERIOR VAGINAL COMPARTMENT?

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OBJECTIVE: The aim of this study was to assess the effect of bilateral vaginal sacrospinous fixation with a suturing device on the unaffected anterior vaginal compartment.

BACKGROUND: Sacrospinous fixation (SSF) of the prolapsed apical vaginal compartment is an established surgical technique. SSF was first described as a unilateral fixation; however, bilateral fixation, when possible, allows a symmetrical vaginal reconstruction and provides additional apical vaginal support. The majority of publications report on the outcome of unilateral, mostly right-sided, fixation procedures. A new suturing device has made bilateral SSF practically more accessible. SSF produces very good long-term outcomes for the apical compartment. It is, however, known to be associated with recurrent pelvic organ prolapse, especially of the anterior vaginal compartment. A search of published literature found only four articles reporting on bilateral SSF. Only three of these reported on the risk of anterior vaginal prolapse, and the published rates varied between 3% and 29%.

METHODS: This was a retrospective longitudinal analysis done at the Urogynaecology Unit of Universitas Hospital (a tertiary referral hospital) and the University of the Free State. Data were obtained by means of hospital folder review for the period January 2008 - December 2009. Consecutive patients who underwent sacrospinous fixation with a suturing device (Capio™, Boston Scientific, Natick, MA) for symptomatic uterine or vaginal vault prolapse during the identified time period were included in the study.

RESULTS: Twenty-three patients were included in the study. The median age was 60 years and the median parity 3. Pre-operatively 96% (22) of the patients presented with apical vaginal prolapse ≥ POP-Q stage 2 and 4% (1) had stage 1 prolapse. Anterior vaginal prolapse ≥ stage 2 was present in 48% (11) of patients, and posterior vaginal prolapse ≥ stage 2 in 43% (10). Concomitant procedures included vaginal hysterectomy in 30% (7), anterior repair in 39% (9), perineal body repair in 70% (16) and rectocele plication in 13% (3). Anterior repair was performed when there was residual anterior vaginal prolapse > stage 1 after manual correction of the apical vaginal compartment. The median follow-up was 10 months for all 23 patients. Fifty-seven per cent of women (13) developed new-onset anterior vaginal prolapse of stage 2 or more.

ANATOMIC AND SYMPTOMATIC OUTCOME AFTER VAGINAL SACROSPINOUS FIXATION WITH MESH FOR POSTERIOR AND APICAL VAGINAL PROLAPSE

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OBJECTIVE: The aim of this study was to describe the intermediate-term anatomical and symptomatic outcomes after sacrospinous colpofixation with posterior vaginal mesh for women presenting with symptomatic posterior and/or apical vaginal prolapse.

BACKGROUND: Pelvic organ prolapse may occur in up to 50% of parous women. Monofilament polypropylene vaginal mesh procedures present an alternative for the surgical correction of pelvic organ prolapse, while potentially offering an improvement of long-term recurrence rates over traditional surgical approaches. There is, however, a relative lack of outcome data for these surgeries outside of the immediate postoperative period. A recent Cochrane review stated that there was an absence of data on the efficacy or otherwise of polypropylene mesh in the posterior vaginal compartment.

METHODS: This was a retrospective longitudinal analysis done at the Urogynaecology Unit of Universitas Hospital (a tertiary referral hospital) and the University of the Free State. Data were obtained by means of hospital folder review for the period January 2008 - December 2009. Consecutive patients who underwent sacrospinous fixation with mesh (Prolift™ or Avaulta™) for symptomatic posterior and/or apical vaginal prolapse during the identified time period were included in the study. Statistical analysis was summarised by frequencies and percentages. Categorical variables were measured with the χ^2 test. Statistical significance was set at $p<0.05$.

RESULTS: A total of 88 cases were identified. Sixty patients were finally included in this study. The mean age was 65 years (±11) and parity 3 (±1.6). Pre-operatively 60% (36) of the patients presented with posterior vaginal prolapse ≥ POP-Q stage 2 and 83% (50) with apical vaginal prolapse ≥ stage 2. The mean follow-up period was 16 months (±6) for 60 patients. There were 3% (2) intra-operative complications, 5% (3) vaginal mesh extrusions and 8% (5) cases of new-onset chronic pelvic pain on follow-up. Pelvic floor symptoms were resolved in 54% of patients ($p<0.001$). Recurrent or persistent posterior vaginal prolapse occurred in 15% (9) of the patients and apical prolapse in 7% (4). The incidence of new-onset anterior vaginal prolapse of stage 2 or more was 35% (21).

CONCLUSION: In view of the 22% persistent or recurrent posterior vaginal prolapse and the 35% new-onset anterior vaginal prolapse, posterior vaginal sacrospinous fixation with mesh is not a very effective procedure. This is aggravated by new-onset pelvic pain syndrome in 8% of the patients. This procedure should therefore only be used when other

procedures such as posterior repair (± anterior repair) or abdominal sacrocolpopexy are not indicated.

LAPAROSCOPY GONE WRONG

G Howarth
Medico-legal adviser and Head of Medical Services – Africa, Medical Protection Society

As the laparoscopic approach to gynaecological surgery has increased, the litigation has followed suit. The Medical Protection Society's experience will be discussed with an emphasis on ways to attempt to minimalise litigation risk.

THE GYNAECOLOGIST AND THE CRIMINAL LAW

G Howarth
Medico-legal adviser and Head of Medical Services – Africa, Medical Protection Society

There are numerous instances where medicine and the law may cross paths. Firstly, the patient may lay a complaint with the Health Professions Council of South Africa (HPCSA) regarding the doctor's conduct or care given. Although not strictly speaking legal, the proceedings are of a legal nature. Secondly, if a patient sues, the doctor becomes involved in civil litigation. Alternatively, following a death, the doctor may be involved in an inquest. Finally, although criminal allegations regarding gynaecologists are rare, and usually restricted to allegations of either indecent assault, or culpable homicide, their consequences can be grave.

Changes to the Criminal Law (Sexual Offences and Related Matters) Amendment Act of 2007 that repealed the common law offences of rape and indecent assault creating new statutory offences will be discussed as well as the potential consequences of the changes.

Owing to differences in legislation to other jurisdictions South African doctors are more at risk of being charged with culpable homicide than their collegues are of being charged with manslaughter in other jurisdictions. The MPS's experience in criminal law will be discussed.

EVERY FEW MONTHS ANOTHER NEW ANTICHOLINERGIC?

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Urgency and the associated problem of urgency incontinence have been reported to affect between 15% and 20% of women. These symptoms have a profound impact on the quality of life of these individuals. Symptoms of the overactive bladder have been reported to be associated with an increase in falls, loss and change of employment, and an increase in stress and depression. Treatment strategies include bladder retraining and manipulation of fluid intake. A number of anticholinergics have been introduced for the treatment of urgency and urgency incontinence. Each individual drug has strengths and weaknesses. Immediate-release oxybutynin is inexpensive but is associated with a high prevalence of side-effects. Tolterodine (Detrusitol) is a bladder-selective drug with a low incidence of side-effects. Solifenacin (Vesicare) is available in 5 mg and 10 mg preparations. The higher dose has been shown to be the most efficacious drug in a recent meta-analysis. Lyrinel (extended-release oxybutynin) is also a very useful drug in the management of this condition. It has the advantage of flexible dosing ranging from 5 to 20 mg daily and a low incidence of side-effects. Darifenicin (Enablex) is also a useful bladder-selective anticholinergic agent. These drugs are useful in the initial management of OAB symptoms, but a number of studies have shown the long-term compliance to be below 45%. This is mainly due to efficacy. Long-term strategies in the management of women with these symptoms include education, comprehensive bladder retraining and progression to more invasive treatments such as Botox and neuromodulation.

MID-UPPER ARM CIRCUMFERENCE IN PREGNANCY: NORMAL VALUES AND ASSOCIATIONS WITH ADVERSE OUTCOMES

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BACKGROUND: Mid-upper arm circumference (MUAC), measured circumferentially (in centimetres) midway between olecranon and acromion is one of the anthropometric measurements. Like most, it is population dependent. Its ability to assess nutritional status can be useful in assessing pre-pregnancy nutritional status, which is an independent predictor of pregnancy outcome.

OBJECTIVES:

1. To establish norms of MUAC distribution in the population of south-west Tshwane.
2. To establish associations between MUAC and adverse maternal and perinatal outcomes.

METHODS: We extracted MUAC data recorded between January 2009 and May 2010, from labour ward data sheets, that are completed when a pregnant woman presents for delivery in south-west Tshwane hospitals. We analysed these data to get the mean and percentiles. We also used frequencies, cross tables, correlations and *t*-tests to establish associations of MUAC with other variables (hypertension, diabetes, gestational age and birth weight).

RESULTS: 4 604 data sheets were complete, of which 253 were excluded from the analysis (women not from south-west Tshwane). The mean was 28.5±4.5 cm. The percentiles were 24, 25, 26, 28, 30, 32 and 34 (all in cm), for the 5th, 10th, 25th, 50th, 75th, 90th and 95th percentiles, respectively. The MUAC analysis positively correlated with hypertension, diabetes, birth weight at term, maternal age and parity. Women with hypertension and diabetes had significantly higher MUAC compared with those without complications, with a mean of 30.1 and 32.2 cm for hypertension and diabetes, respectively (p-value <0.0001). MUAC positively correlated with birth mass for gestational age above 37 completed weeks with no complications. For weight <2 500 g there was no significant correlation, and for birth mass >4 000 g, MUAC was specific with a very poor sensitivity. We found no correlation between MUAC and adverse perinatal outcomes.

CONCLUSION: We were able to establish percentile values of MUAC for the urban population of south-west Tshwane. We also succeeded in establishing associations between MUAC and hypertension and diabetes, respectively. No cut-off points were identified to predict birth weights of either >4 000 g or <2 500 g. However, a positive correlation between birth weight at term and MUAC was found.

EFFECT OF NOT REMOVING BLOOD CLOTS DURING LAPAROTOMY FOR RUPTURED ECTOPIC PREGNANCY

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INTRODUCTION: Intra-abdominal blood clots: a source of iron or a source of infection?

OBJECTIVE: To evaluate the effect of not removing the blood clots, with possible infection and the prevention of iron loss the main end-points.

METHODS: A randomised controlled trial was performed. At laparotomy for ruptured ectopic pregnancy, the clots were either removed or not. The main outcome measures were postoperative fever, haemoglobin and ferritin.

RESULTS: Over 2 years 80 patients were included: 38 in the study group (no removal of clots) and 42 in the control group (clots removed). The mean age was 27 years in group 1 and 30 in group 2. In group 1, the mean gestational age was 5.5 weeks and in group 2, 26.5 weeks. The left tube was affected in 27 patients in group 1 (71%) and 21 (50%) in group 2. On day 3 postoperatively the mean haemoglobin value was 2.0 g/dl lower compared with the pre-operative value in group 1, and in group 2 the difference was -2.2 g/dl. Ferritin levels increased by 67 in group 1 and 84 in group 2, with a similar decrease after day 3. The white cell count dropped by 0.7 in group 1 and 0.21 in group 2. In both groups a mean of 2 units of blood were needed, and the mean hospital stay was 4 days in group 1 and 3.5 days in group 2.

CONCLUSION: The differences between the two groups were clinically insignificant.

MEANS AND MEDICATIONS TO IMPROVE SPERM QUALITY

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INTRODUCTION: Infertility is defined as a couple's inability to achieve conception despite one year of frequent unprotected intercourse. In 40 - 50% of these cases there will be a male factor involved. There are four main causes of male infertility: (*i*) hypothalamic/pituitary disease (secondary hypogonadism); (*ii*) testicular disease (primary spermatogenesis failure and hypogonadism); (*iii*) post-testicular disease (primary spermatogenesis failure and hypogonadism); (*iv*) post-testicular defects (disorders of sperm transport); and (*v*) non-classifiable.

AIM: The aim of this talk is to review the literature and discuss different treatment options.

RESULTS: Specific endocrine treatment is available only for men whose infertility results from hypogonadotropic hypogonadism. Treatment is of uncertain efficacy. Treatments of genital infections, sperm auto-immunity and retrograde ejaculation have merit. Varicocele removal seems to be of benefit. Vitamin supplements can be of benefit. It is important to change lifestyle and stop smoking and alcohol use in male factor infertility cases.

CONCLUSION: Male factor infertility warrants careful evaluation and treatment prior to ICSI. This approach can assist a large proportion of couples.

STRETCHING THE REPRODUCTIVE YEARS: LATE MOTHERHOOD

Paul le Roux
Cape Fertility Clinic

INTRODUCTION: Globally the mean age of child-bearing women is increasing. More women require fertility treatment, including IVF (*in vitro* fertilisation) and egg donation. Evaluation of ovarian reserve, the modification of IVF protocols for egg factor infertility and counselling about the poor prognosis with IVF in women over 40 years is a challenging part of modern reproductive medicine practice. National guidelines are necessary for the management of older women needing egg donation.

METHODS: A retrospective audit of the data from a private IVF clinic in Cape Town was performed for the year 2009.

RESULTS: There was an increase of 10% per annum in women accessing private IVF treatment in 2009. Seven hundred and seventy aspirations were performed during the 12-month period. The pregnancy rate with IVF was 40% in the age group under 35 years, 33% in the age group 35 - 39 years, and 20% over the age of 39 years. In the group having egg donation treatment the pregnancy rate was 64%. Of all the aspirations performed, 24% were for egg donation treatments.

CONCLUSIONS: There was an increased number of women over the age of 40 years needing IVF and egg donation. Pregnancy rates with IVF are low over the age of 40 years and ovarian reserve testing may be a useful guide to when to stop treatment. Egg donation is a successful option for older patients with failed IVF due to poor oocyte quality. National guidelines for egg donation treatment are critically important to maintain good practice.

MEDICOLEGAL CASES – INTRODUCTION: TRENDS IN COMPLAINTS IN SOUTH AFRICA

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In South Africa there are three big methods of litigation against practitioners: (*i*) regulatory through the HPCSA; (*ii*) civil litigation; and (*iii*) criminal litigation.

Obstetrics and gynaecology is a discipline often involved in litigation. The co-leaders of this pack are neurosurgery, anaesthesiology, orthopaedic surgery, plastic and reconstructive surgery and general surgery. Other surgical disciplines such as ophthalmology, urology and otorhinolaryngology are also bearing some litigation weight, but to a lesser degree. It is interesting to note that consultative disciplines are less often encountered in litigation.

In O&G the pendulum has swung away from complications of vaginal delivery (including cerebral palsy cases) to complications of laparoscopic surgery as the focus area. While the obstetric litigation matter still includes poor outcome and complicated vaginal delivery, more and more complaints are dealt with concerning complications of caesarean section including infection, postpartum bleeding and anaesthetic concerns. Laparoscopic complaints include complications, poor aftercare and inability to complete procedures as planned.

Other prominent matters include informed consent, confidentiality, respect issues of interpersonal communication and surgical complications.

In this session cases will be presented to elicit discussion on how to prevent litigation and how to improve patient care and in particular communication.

CONGENITAL ANOMALIES: DIAGNOSTIC APPROACH AND MANAGEMENT

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Infrequently seen by the practitioner but having a massive impact on the life of the patient and her family, congenital gynaecological anomalies are a difficult group of conditions to manage. While it is clearly beneficial to refer the patient to centres where anomalies are frequently managed, the practitioner should have a basic approach towards diagnosis to deal with emergencies and with counselling.

This presentation will classify anomalies into: (*i*) obstructive; (*ii*) absences; and (*iii*) duplications. Obstructive anomalies include septa of the vagina and atresia of the cervix. These lesions are always dangerous and very difficult to manage. Absence of organs due to atresia is a chronic condition that can be managed electively, as are duplications.

The foundation of management is an accurate diagnosis. This is based on the clinical assessment with a good understanding of the possibilities, combined with imaging. Current MRI provides superior imaging of the soft tissues of the pelvis and should be the preferred test. The interpretation requires knowledge and understanding too!

Management of the different types of anomalies will be discussed. Obstructive anomalies require surgery and often

multiple operations. The almost insurmountable difficulty of maintaining an outflow in an adolescent will be discussed. Often it is best to suppress menstruation by use of long-acting depo-progestogen preparations and to defer surgery to early adulthood. Absence of the vagina due to Rokitansky syndrome will be discussed in detail, and the Pretoria approach to surgical construction of the neovagina will be explained. Duplications seldom require surgery unless there are coinciding septa or other obstructive lesions. Rare anomalies will be mentioned to increase awareness of the conditions.

THE FUTURE OF MEDICINE IN SOUTH AFRICA

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South Africa suffers the colliding epidemics of HIV and TB, chronic diseases, trauma, and maternal, fetal and infant deaths. Together with this already alarming situation there are remaining inequities and inequalities in the health system. This leads to increasing demands for political intervention to make all things equal. One model proposed is a National Health Insurance scheme. While a well-known government policy issue, the implementation is still shrouded in secrecy. This leads to continuing uncertainty and debate. This is turn leads to the main issue being missed: The future of health care in SA MUST address the colliding epidemics for the population to survive. How it is funded is a secondary matter. The private sector is very strong and will survive if it is not regarded as part of the problem but rather part of the solution.

PERINATAL MORTALITY DUE TO DIABETES AND HYPERTENSION IN SOUTH AFRICA

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AIM: The aim was to calculate the perinatal mortality of all types of hypertension and chronic hypertension in women aged over 35 years and the perinatal mortality rate for women with diabetes mellitus from 2002 to 2007.

METHOD: Data were collected from the sites that use the Perinatal Problem Identification Programme (PPIP). Perinatal mortality included all deaths above 500 g up to 28 days after delivery. The PPIP data from 1 January 2002 to 31 December 2007 were analysed. The perinatal mortality rate was calculated for all deaths that were found to be due to diabetes mellitus. The perinatal mortality rate is expressed per 1 000 deliveries. For hypertension the deaths were analysed for all types of hypertension, and for women above 35 years with chronic hypertension and for diabetes mellitus the deaths were analysed in the different levels of care.

RESULTS: From 1 January 2002 to 31 December 2007 there were a total of 1 659 582 deliveries.

Table I shows the perinatal mortality for diabetes mellitus and Table II the perinatal mortality for hypertension.

CONCLUSION: There was a steady increase in the perinatal mortality due to diabetes mellitus at all levels of care. There was a steady incline in perinatal mortality in women with chronic hypertension and a sharp rise in women with all types of hypertension.

Table I. Perinatal mortality for diabetes mellitus

	2002	2003	2004	2005	2006	2007
CHC	2.678021	2.43652	2.3961	2.374796	3.334652	4.390472
DH	1.408451	3.089121	2.06697	3.352217	3.744134	2.768632
RH	2.678021	2.43652	2.3961	2.374796	3.334652	4.390472
TH	6.840335	8.345753	3.691172	5.626085	4.139823	8.697543

CHC = community health centre; DH = district hospital; RH = regional hospital; TH = tertiary hospital.

Table II. Perinatal mortality for hypertension

	2002	2003	2004	2005	2006	2007
PNMR for all hypertension	0	5.618	24.228	41.621	56.886	58.139
PNMR chronic hypertension in women >35	0	2.809	5.013	7.531	9.536	9.028

TWIN-TO-TWIN TRANSFUSION SYNDROME

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The incidence of twins is 3 - 5/1 000 for monozygotic pregnancies. Dizygotic twins have an ethnic variation, from 1:30 in Africa to 1:100 in Asia.

The following complications of twin pregnancies will be discussed in detail: (*i*) screening for chromosomal anomalies; (*ii*) early and late loss; (*iii*) discordance for structural anomalies; (*iv*) discordance for chromosomal anomalies; (*v*) twin reversal arterial perfusion syndrome (TRAP syndrome); (*vi*) conjoined twins; and (*vii*) death of a co-twin.

First-trimester screening is the gold standard to screen women with multiple pregnancies. With regard to early loss of a twin, there is a 27% loss rate before 12 weeks in twins diagnosed before 7 weeks of one sac and 9% loss of both twins. Structural anomalies are much higher in monochorionic than diamniotic twin pregnancies. It is commonly heart and central nervous systems that are affected, with 80% of anomalies in monochorionic pregnancies in one fetus only. The method of selective termination depends on the chorionicity. TRAP syndrome has an incidence of 1:35 000 with one structurally normal fetus and the other fetus with only normal lower limbs. The management is either expectant or cord occlusion. Conjoined twins have an incidence of 1:50 000. The patient needs extensive counselling and special investigations such as detail fetal echocardiography and MRI to determine the extent. Termination of pregnancy should be offered. Death of a co-twin happens in 5% of pregnancies after 20 weeks. The risk for the surviving fetus depends on the chorionicity: risk of death in the co-twin – 12% for MC twins and 4% for DC twins; risk for neurological morbidity – 18% for MC twins and 1% for DC twins; risk of preterm labour – 68% in MC twins and 57% in DC twins.

SCREENING FOR DIABETES

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Since the publication by Caroline Crowther which indicated that treatment of gestational diabetes mellitus is of benefit, the question is now how the screening should be done. Where possible, universal screening should be offered to all pregnant women. This is not practical in all settings. The matter is further complicated by the fact that there are no true screening tests available and that an oral glucose tolerance test is a diagnostic test. Currently the different world bodies are not in agreement as to what the diagnostic values should be, and if the different diagnostic criteria are applied to the same patient different results are obtained. The advantage of risk-based screening is that it limits the number of oral

glucose tolerance tests, but the potential is there that some patients will not be diagnosed. In the public health sector in the absence of more reliable screening methods this will remain a screening method. Another problem with the oral glucose tolerance test is that there are questions regarding the reproducibility of the oral glucose tolerance test and the fact that some women are unable to complete the test. The question is also which of the diagnostic criteria can be applied to South African women. From a small study done in south-west Tshwane it appears that the World Health Organization criteria are the best diagnostic criteria to use in the absence of a universally accepted diagnostic criterion.

LAPAROSCOPIC MYOMECTOMY: A SAFE ALTERNATIVE?

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INTRODUCTION AND AIM: The safety of laparoscopic myomectomy has been questioned, especially in the case of intramural fibroids. Our aim was to assess the safety of a laparoscopic myomectomy for intramural fibroids and study the effect on fertility.

METHODS AND SETTINGS: A retrospective study of a single private reproductive biology centre specialising in laparoscopic myomectomy.

RESULTS: In the 58 patients studied there were no major complications. The conversion rate from laparoscopy to laparotomy was 3/58 (5%) due to multiple fibroids. There was one case of uterine perforation during hysteroscopy. The overall pregnancy rate was 25/44 (57%) with a spontaneous pregnancy rate of 14/25 (56%).

CONCLUSIONS: Laparoscopic myomectomy can be regarded as a safe alternative to abdominal myomectomy in the hands of the experienced surgeon. We are also of the opinion that if an intramural fibroid is suspected to be a causative factor for infertility and fits within the set criteria for removal, its removal will probably improve fertility.

A PROSPECTIVE STUDY REVIEW OF 15 YEARS OF TOTAL LAPAROSCOPIC HYSTERECTOMY IN PRIVATE PRACTICE IN SOUTH AFRICA (1996 - 2010)

Francois J Lubbe
Private practice

STUDY DESIGN: A prospective ongoing study involving one surgeon was designed for all patients who were hysterectomy candidates to undergo the total laparoscopic hysterectomy (TLH) technique but with conversion to total abdominal hysterectomy (TAH) or vaginal hysterectomy (VH) when the laparoscopic approach proved to be technically not preferable. Laparoscopic-assisted vaginal hysterectomy (LAVH) and laparoscopic supracervical hysterectomy (LSH) procedures were first performed from 1994 and the TLH technique from 1996 till the present.

EXCLUSION CRITERIA: These included malignant disease and patients where laparotomy had to be performed concomitantly for other indications. Comparative cost analysis with conventional hysterectomy techniques was also performed.

MAIN RESULTS: More than 400 consecutive laparoscopic hysterectomies were performed with 3 primary and 2 secondary conversions (1.25%). Pre- and postoperative biochemical analysis will be reported.

COST: The comparative cost analysis between five hysterectomy techniques proved the economic equality of total laparoscopic hysterectomy (the Big Five – 1998).

COMPLICATIONS: No deaths occurred, but 7 ureteric injuries and a single small-bowel perforation occurred in the early stages of the learning curve and in complicated procedures. Comparisons with other surgeons' published data will be presented.

PATIENT RESPONSE: Each patient completed a questionnaire during the postoperative period, reflecting the recuperation period, which proved to be superior in comparison with traditional hysterectomy.

TECHNIQUE: All pedicles were secured and transected by electrosurgical means or by suturing and an extracorporeal knot tying technique. A video clip will be presented to demonstrate the surgical technique.

INSTRUMENTATION: A specialised uterine manipulator (Lubbe-Levator) was utilised to perform circumferential culdotomy. This instrument was developed during the study period and is now being manufactured in South Africa. No disposable instrumentation is utilised, resulting in superior cost effectiveness to abdominal hysterectomy.

CONCLUSION: The TLH technique should be offered to South African patients as an equally safe and cost-effective surgical technique for hysterectomy.

THE FREQUENCY OF HYPERLIPIDAEMIA AND INSULIN RESISTANCE IN WOMEN WITH PCOS

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OBJECTIVE: The profiles and ethnic differences of South African women with PCOS have not been described. Our study aims to describe and compare the phenotypic profile of African and Indian women with PCOS and to determine the frequency of insulin resistance and hyperlipidaemia in these women.

METHODS: A retrospective audit of all patients attending gynaecology endocrine and infertility clinics over the period June 2005 - June 2009 was carried out. The biochemical and clinical profiles were analysed and a comparative analysis between the two largest groups, Indian and black women, was done. All women who attended these clinics were subjected to a fasting lipogram and fasting serum glucose. An abnormal fasting serum glucose would have necessitated a full glucose tolerance test.

RESULTS: PCOS was diagnosed in 110 women. The largest racial groups were Indian (*N*=87) and black (*N*=16). In all women (*N*=110) the prevalence of obesity was 69.7%, and menstrual irregularities were the commonest presenting complaint (49.5%). The prevalence of insulin resistance was 50.9% and that of hyperlipidaemia 11.3%. There were no differences in metabolic sequelae between Indian and black women, but there was a trend towards a higher prevalence of hyperglycaemia in Indian women.

CONCLUSION: Local women with PCOS have a high prevalence of insulin resistance, obesity and hyperlipidaemia. Menstrual irregularity is the most frequent presenting complaint of women with PCOS. There are no differences in the hormonal and clinical profile of South African Indian and black women with PCOS; however, there is a trend toward Indian women having a greater prevalence of glucose abnormalities than black women. We recommend further studies in the management of the metabolic abnormalities in local women with PCOS, in an attempt to develop a protocol to manage the metabolic complexities of PCOS.

THE ROLE OF TWO-DIMENSIONAL ULTRASOUND VERSUS OFFICE HYSTEROSCOPY IN ASSESSMENT OF CONGENITAL UTERINE ANOMALIES

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BACKGROUND: The true incidence of congenital uterine anomalies is unknown. They generally occur in 2 - 4% of fertile women with normal reproductive outcomes. The diagnostic tools available are not standardised and not reproducible. Furthermore, most of them are not easily available and accessible.

OBJECTIVE: To evaluate the role of two-dimensional ultrasound versus office hysteroscopy in the assessment of congenital uterine anomalies.

METHODS: From December 2008 to December 2009 we evaluated 257 women with infertility, recurrent spontaneous miscarriages and abnormal uterine bleeding using two-dimensional transvaginal ultrasound (fundal-myometrial measurement, Fm) followed by an office hysteroscopy for detection of uterine septum or sub-septum. The statistical package for social science (SPSS 16) was used for analysis. The study was approved by the University's ethics committee.

RESULTS: Overall, the incidence of congenital uterine anomalies was 11.5%. The commonest anomaly was a sub-septum (7.8%). There was only one case of a bicornuate uterus. Of our study population, 68% were high-risk women (infertility and/or recurrent miscarriages). There was no association between fundal-myometrial thickness (Fm) and the presence or absence of the uterine septum or sub-septum. However, there was a significant association between septate/sub-septate uterus and the miscarriage rate ($p<0.01$).

CONCLUSION: There was no association between ultrasound fundal-myometrial thickness and the presence or absence of the uterine septum or sub-septum on hysteroscopy.

MATERNAL AND FETAL OUTCOMES OF HIV-POSITIVE WOMEN ON HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART) AT DR GEORGE MUKHARI HOSPITAL: A CASE-CONTROLLED STUDY

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OBJECTIVES: Pregnant women who test positive for HIV infection and have a CD4 cell count of <200/µl and a viral load ≥1 000 copies are immediately put on HAART. Other HIV-positive pregnant women receive nevirapine as intrapartum prophylaxis for the prevention of mother-to-child transmission during delivery. This clinical study evaluated the effects of HAART on the eventual pregnancy outcomes, maternal and fetal, in comparison with women who received only intrapartum nevirapine.

METHODOLOGY: HIV-infected women were recruited prospectively and classified for immediate therapy with HAART or for intrapartum nevirapine prophylaxis at delivery. All had agreed not to breast-feed their babies for at least 6 weeks postpartum. Investigations conducted were FBC, LFT, hepatitis B and CD4 counts. Duration of labour, mode of delivery, maternal and fetal complications (preterm delivery, puerperal and/or wound sepsis, stillbirths and neonatal deaths) were evaluated. A PCR test was carried out on all babies after 6 weeks to determine the rate of HIV transmission.

RESULTS: The HAART group (N=66) was similar to the nevirapine group (N=95) with regard to age, parity and gestation at delivery. There were statistically significant differences in haematological indices for the two groups, but 9 women on HAART had elevated liver enzymes. Two women had puerperal sepsis and 2 had wound sepsis (HAART group) as against 3 women with puerperal sepsis and 1 with wound sepsis for the nevirapine group. The postpartum PCR test was positive for HIV in 4 babies (6.1%) in the HAART group and 11 babies (11.6%) in the nevirapine group. The relative risk of HIV transmission to the newborns was 1.9 (95% confidence interval 0.88 - 2.92) among women who received intrapartum nevirapine.

CONCLUSION: There was evidence of hepatotoxicity among women who received HAART, but all the obstetric outcomes were similar for both groups. However, the obvious advantage of instituting early therapy with HAART was the lower mother-to-child transmission rate of HIV in this group.

ANAEMIA

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Iron deficiency anaemia is the most common deficiency in women of child-bearing age throughout the world, and it is even more common in pregnancy because of the increasing requirements during this period. The aetiology, clinical presentation, management and pathophysiology of both maternal and fetal complications due to anaemia will be discussed.

HIV AND THE OLDER WOMAN: RESULTS FROM A SURVEY IN SOWETO, JOHANNESBURG

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INTRODUCTION: In sub-Saharan Africa, much of what is known about HIV is from opportunistic testing of pregnant women, and testing of individuals who present with already advanced HIV disease. Little is known about HIV and the older woman. A survey was conducted in Soweto, Johannesburg, to assess the HIV prevalence, risk perception, and risk factors in women older than 45 years.

METHODS: The survey consisted of interviews and health screening which included an HIV test, weight, blood glucose and blood pressure measurement. Recruitment was promoted using community radio stations and key informants in the community, in both formal and informal settlements. 493 women were enrolled, and 457 were included in this analysis.

RESULTS: Participants ranged from 45 to 72 years. 457 women had HIV test results, and 59 (12.9%) tested HIV positive. The HIV-positive women tended to be younger, with a mean age of 52.4±7.6 years and a median of 50.0 years (IQR 46.2 - 58.3), and were less likely to be married – 17.5% compared with 31.4% among the HIV-negative women. Levels of unemployment and schooling were similar in both groups. The unemployment rate was 74.6% v. 73.2%, and 81.4% v. 85.9% had more than 5 years of schooling in the HIV-positive and HIV-negative groups, respectively.

Of the HIV-positive women, 66.1% (39/59) had tested before; 61.5% (24/39) knew they were HIV positive, and a half were on ART. CD4 cell counts ranged from 84 to 964 cells/µl, with a median of 379 cells/µl. In the group with CD4 cell counts below 350, 88.2% (15/17) were not on ART. CD4 cell counts above 500 were found in 37.8% (14/37) of 'untreated women'. 64.4% (38/59) had a current sexual partner, 62.7% (37/59) were postmenopausal and only 4 (10.8%) were on hormone replacement therapy. A co-morbid disorder was present in 44.1% (26/59), diabetes and hypertension being the commonest conditions.

CONCLUSIONS: In this survey, HIV prevalence in women older than 45 years was high at 12.9%, and a significant number had underlying co-morbidities. The high CD4 cell counts in those not on ART may suggest recent infection. There needs to be greater involvement of the older population in HIV programmes.

LOW-DOSE ORAL CONTRACEPTIVES

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2010 is a special year for Women's Health as we celebrate the 50th anniversary of the registration of the first oral contraceptive with FDA in USA in May 1960. The Pill has had an enormous impact on lifestyle choices of women. It was the first medication designed to be taken long term by people who were not sick. In 1999 *The Economist* named it 'The most important scientific advance of the 20th century'.

It therefore seems fitting to look back at Pill development over the last five decades, encompassing dramatic dose reduction of the oestrogen component as well as the development of numerous new progestins, to assess how far we have come and where we stand with today's low-dose formulations, then finally to look forward to what the future may hold in trends and development of oral contraceptives.

MATERNAL MORTALITY

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The interventions that are effective in reducing maternal and neonatal mortality have to be delivered through a functioning health system. The model of maternity care within the health system affects the access women have to treatment for complications. The World Health Organization has recommended the district model in developing countries, and within such a system it only recognises two levels of care, basic and comprehensive emergency obstetric care (BEOC and CEOC). This paper is a review of the changes which have to be implemented in the health systems of sub-Saharan African countries in order to reduce maternal mortality significantly.

METHODS: A sub-analysis of the database of the Zimbabwe Maternal and Perinatal Mortality Study was done to determine the effect of referrals through multiple levels on maternal outcome. A search of studies reporting on models of maternity care in sub-Saharan Africa was also done in Medline, Pubmed, the Cochrane Library and the websites of WHO, UNICEF and UNFPA.

RESULTS: The analysis of the ZMPMS showed that most women in rural areas did not have access to the recommended two-level obstetric care in Zimbabwe. The situation was better in urban areas. The rates of effective interventions were highest in urban women attending private clinics, whose complete care was achieved at one level. Several models were identified, but most SSA countries have a pyramidal model, with effective care only available at the third or fourth level. Rates of skilled attendance are very low as a result. There were few reports of countries actively attempting to implement the two-level district model.

CONCLUSION: The district model is the most cost effective, and it should be strengthened by upgrading selected rural health centres to BEOC status, and ensuring that district hospitals provide true CEOC. Addition of maternity waiting shelters to BEOC facilities could increase the skilled attendance rates.

PELVIC PAIN: WHAT IS NEW?

Bala Naidoo

Pregnancy is associated with increased vascularity to all tissues for fetal development and the physiological adaptation of the human body to pregnancy and childbirth. Hyperalgesia (lowered pain threshold) sensitises blood vessels to detect poor blood flow causing ischaemic hypoxia at a very early stage. Hypoxia or tissue injury is followed by endothelial activation – vasodilatation – inflammatory response – tissue oedema – nerve stimulation – pain – myofibril stimulation – muscle action – and increased venous return. Failure of this response leads to fetal malnutrition and stillbirth, deep-vein thrombosis and pulmonary embolism. Pain is therefore a protective mechanism to improve tissue perfusion and to move away from the noxious stimulus.

All symptoms of pregnancy are reviewed on the basis of human evolution and physiology. Pelvic pain, acute or chronic, appears to be a reversion of the human body to a pregnancy state. This reflex appears to be present in all females during menstruation, pregnancy and menopause and is often triggered by stress, sometimes with other pathologies such as endometriosis, fibroids and ovarian cysts.

THE ASSOCIATION BETWEEN OBSTETRIC FACTORS AND THE DEVELOPMENT OF ANAL INCONTINENCE IN A LOW-RESOURCED SETTING

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Anal incontinence (AI) impacts negatively on quality of life. Mechanical sphincter disruption and nerve damage are the major causes of altered anal sphincter function, with certain obstetric factors increasing the risk. Most published data on AI originate from affluent countries. This study, looking at obstetric factors, was performed in two regional hospitals attended by mainly South African Zulu-speaking black Africans and Indians.

Of the 1 254 study patients, 84 (6.3%) underwent induction of labour (IOL) and 116 (8.8%) required augmentation. Overall 247 (18.6%) had epidural analgesia, 444 (33.4%) had episiotomies, 11 (0.8%) required instrumental delivery, and 203 (15.3%) sustained 3rd- and 4th-degree tears.

IOL and augmentation was associated with a non-significant increase in the prevalence of AI at 6 weeks and 6 months. Incontinence of flatus at 6 weeks was significantly lower for those having epidural analgesia than those that did not (p=0.000), with a lower persistence at 6 months (p=0.833). Faecal incontinence at 6 weeks was lower for those having epidural analgesia than those that did not (p=0.093), with a persistence of 1.4% v. 0.8% at 6 months (p=0.389). Episiotomy was associated with a non-significant increase in the prevalence of incontinence of flatus at 6 weeks and 6 months and significantly associated with an increased incidence of incontinence of faeces at 6 weeks (p=0.049). However, the persistence at 6 months was non-significant (p=0.087). Instrumental delivery was associated with a non-significant increase in the prevalence of incontinence of flatus at 6 weeks and 6 months (p=0.309 and p=0.43). None of those who had instrumental deliveries developed incontinence of faeces at 6 weeks compared with those who did not (p=0.47). Perineal tears were associated with an increase, although non-significant, in the prevalence of incontinence of flatus and faeces at 6 weeks and 6 months.

This study confirms that AI is common in a low-resourced setting, and highlights an association with certain obstetric factors.

THE FUTURE: GENOMIC MEDICINE (INCLUDING OBSTETRICS AND GYNAECOLOGY)

Lord Naren Patel

Every so often, scientific advance offers new opportunity to prevent, diagnose and cure disease. Advances in genomic science and medicine have the potential to do so in the near future. Since the mapping of the human genome in 2000, advances in fast sequencing, micro-array, pharmacogenetics, pharmacogenomics, stratified medicines, gene-wide associations of common diseases, development of molecular and genetic tests, cancer genomics, and the latest development in the possibility of sequencing for DNA methylation all suggest that the practice of medicine in future will be more

personalised based on such knowledge. Individuals' genetic risk for diseases, the effect of environment and early markers of developing disease may well become commonplace. There are already examples of these.

Knowledge of genetics, epigenetics and proteomics applied to individuals will indentify the person's risk of disease, ways of reducing the risk, early manifestations of disease and treatment.

This advance in science has implications for practice for all branches of medicine. It also has ethical and training implications.

My presentation is based on the UK parliamentary enquiry (which I chaired) on the current state and future implications for health care of genomics medicine.

THROMBOPROPHYLAXIS IN PREGNANCY

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Pregnancy is a prothrombotic condition, and despite advances in the prophylaxis and treatment of venous thrombo-embolic (VTE) disease in pregnancy, pulmonary thrombo-embolism (PTE) remains the commonest direct cause of maternal death in the UK, with 33 deaths occurring between 2003 and 2005 (1.56 per 100 000 maternities) (Confidential Enquiry into Maternal and Child Health, CEMACH, 2007[1]) and VTE (including cerebral venous thrombosis) is the second commonest cause of maternal death overall (14% of maternal deaths). Successive enquiry reports have highlighted the need to identify risk factors for VTE early in pregnancy and ensure that adequate thromboprophylaxis is employed. The Royal College of Obstetricians and Gynaecologists (RCOG) has recently published updated guidelines regarding thromboprophylaxis, covering both the antenatal and postnatal periods.[2]

Traditionally, VTE has been considered a complication of late pregnancy and caesarean section. However, recent data show that VTE is common in the first trimester and up to 6 weeks post partum. Risks in the first trimester include hyperemesis, ovarian hyperstimulation syndrome and surgery for miscarriage and ectopics. The risk of recurrent VTE in pregnancy in women with previous VTE is higher in those with previous oestrogen-related VTE, recurrent VTE and thrombophilia. The updated RCOG guidelines recommend risk assessment at booking and after delivery and thromboprophylaxis with LMWH in those with three risk factors (for example an obese woman over the age of 35 with pre-eclampsia) antenatally or two post partum. Postpartum thromboprophylaxis should be continued for at least 1 week, and for 6 weeks in those who required antenatal thromboprophylaxis. Dose capping should be avoided, and higher doses are needed in obese women.

It is important to remember that the VTE risk may change for a particular woman as pregnancy progresses, for example if she develops pre-eclampsia, and the risk factor assessment should be repeated if there is any change in circumstances, and the LMWH dosage increased or initiated as appropriate. It may be that the additional risk factor is only temporary, for example hyperemesis gravidarum, and the original regimen can be returned to once the condition or situation has resolved.

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CARDIAC DISEASE IN PREGNANCY

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Cardiac disease is the leading cause of maternal death in the UK. There were 48 indirect deaths attributed to cardiac disease in 2003 - 2005, representing 16% of all direct and indirect deaths. The major causes of cardiac deaths over the past 10 years are acquired heart disease: cardiomyopathy (predominantly peripartum), myocardial infarction, dissection of the thoracic aorta and pulmonary hypertension. Rheumatic heart disease has re-emerged as a cause of maternal death and is encountered most commonly in migrant women.

Not all women with significant heart disease are able to meet the increased physiological demands of pregnancy. They are at risk of serious morbidities including arrhythmias, stroke and heart failure. Their babies are at an increased risk of perinatal mortality and morbidity including preterm delivery, congenital heart disease and fetal growth restriction. Women with a NYHA functional class before pregnancy of III or IV are less able to tolerate pregnancy. Other markers for adverse events in pregnancy are pulmonary hypertension, previous arrhythmias or stroke, significant left heart obstruction and left ventricular failure. Women with mechanical prosthetic valves face increased adverse outcomes related to the need for anticoagulation in pregnancy. Recent data suggest that LMWH if used with careful and regular monitoring and in conjunction with low-dose aspirin is a safe alternative to warfarin.

The care of the pregnant and parturient woman with heart disease requires a multidisciplinary approach, involving obstetricians, cardiologists and anaesthetists, preferably in a dedicated antenatal cardiac clinic. This allows formulation of an agreed and documented management plan encompassing management of both planned and emergency delivery. Most women can undergo vaginal delivery.

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RENAL DISEASE IN PREGNANCY

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There are important physiological changes in renal function in pregnancy, including a physiological hydronephrosis and significant increases in renal plasma flow, glomerular filtration rate (GFR) and creatinine clearance. These result in a fall in the serum urea and creatinine levels. Protein excretion is increased and the upper limit of normal in pregnancy is taken as 300 mg/24 h or a protein-creatinine ratio of 30 mg/mmol.

Urinary tract infection is more common in pregnancy. Women with chronic kidney disease (CKD) are at increased risk of pre-eclampsia, fetal growth restriction (FGR), preterm delivery and caesarean section; the perinatal mortality rate is increased. These obstetric complications and the risk of permanent deterioration in renal function are increased by the presence and severity of any renal impairment or hypertension. For women with moderate or severe renal impairment (plasma creatinine >125 µmol/l), 60 - 90% of infants are born preterm and the risk of acceleration of decline in renal function is 20 - 50%. An increase in the degree of proteinuria is very common

in pregnancy and does not necessarily imply pre-eclampsia or worsening renal disease. In view of the increased risk of pre-eclampsia, low-dose aspirin is appropriate, especially in those with hypertension and renal impairment or a previous poor obstetric history.

Pregnancies in women with renal transplants are now encountered frequently. If graft function is normal, pregnancy outcome is excellent and there is no adverse long-term effect on renal allograft function or survival. The doses of immunosuppressive drugs are maintained at pre-pregnancy levels. Prednisolone, azathioprine, cyclosporin and tacrolimus are safe for use in pregnancy. Mycophenolate mofetil is usually contraindicated. The risks of pre-eclampsia, graft rejection, FGR, preterm delivery and infection are increased. Caesarean section is only required for obstetric indications, but the rate is increased. Prophylactic antibiotics should be given to cover any surgical procedure.

The causes of acute kidney injury in pregnancy include the following:

- infection: septic abortion, puerperal sepsis, rarely acute pyelonephritis
- blood loss: postpartum haemorrhage, abruption
- volume contraction: pre-eclampsia, eclampsia (6%), hyperemesis gravidarum
- post-renal failure: ureteric damage or obstruction
- drugs: non-steroidal anti-inflammatory drugs (NSAIDs), antibiotics.

In many of these situations, there is an associated coagulopathy.

OBESITY IN PREGNANCY

Jane Norman
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The prevalence of obesity among pregnant women is increasing in many countries year by year. Obese pregnant women are at increased risk of a variety of pregnancy complications, including gestational diabetes and pre-eclampsia. They are more likely to need a caesarean section, and there is some evidence that this is due to poor uterine contractility. Their risk of thrombo-embolism and infection is also increased, and together these adverse outcomes contribute to the increased risk of maternal death.

The adverse outcomes of obesity in pregnancy are not confined to the mother. The pregnancy is more likely to miscarry, and the baby is more likely to have an anomaly or to be stillborn. The babies' birth weights are greater than those of babies born to leaner women, and this may predispose to increased later-life risks of obesity and asthma.

The new Institute of Medicine guidelines indicate that obese pregnant women should be advised to limit weight gain during pregnancy. Weight loss during pregnancy is not recommended. These guidelines are based on evidence showing that booking body mass index and weight gain during pregnancy are independent but synergistic risk factors for adverse pregnancy outcome.

There is little evidence base on which to manage obese pregnant women. Screening for gestational diabetes seems sensible, and postnatal thromboprophylaxis can be used to reduce the risk of thrombo-embolism. Decisions about mode of delivery are challenging. Vaginal delivery is probably safest for the mother, but if a caesarean section is to be performed, there are major advantages of elective over emergency caesarean section. These advantages include reduced morbidity and greater availability of experienced staff. Additionally, these are a challenging group of women to anaesthetise, and rapid induction of anaesthesia may not be possible. In a selected group of women, a planned elective caesarean section might therefore be appropriate.

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PRETERM LABOUR

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Preterm birth is the single biggest cause of neonatal mortality and morbidity in resource-rich countries. Rates of preterm birth are rising, driven globally by the increase in elective preterm birth, and in some countries such as the UK[1] and Australia by parallel increases in spontaneous preterm labour leading to preterm delivery.

The cause of spontaneous preterm labour is unknown. Intra-uterine infection and/or inflammation appear to play a role in the majority of women. Not only does intra-uterine infection/inflammation initiate myometrial contractions (possibly via Toll-like receptor activation of cytokine and prostaglandin expression), but it is also causally linked to the perinatal brain damage that accompanies preterm labour. This may account for our recent finding that babies born following spontaneous preterm labour have poorer outcomes than those following elective preterm delivery, when matched for gestational age.[1]

Traditionally, therapies to prevent preterm labour have been assessed on whether they prolong gestation. Using these criteria, progesterone and cervical cerclage are both 'effective' when applied prophylactically to high-risk women with a short cervix (each of progesterone or cerclage) or a previous preterm birth (progesterone). Neither cerclage nor progesterone is effective in twin pregnancy. A more important outcome, however, is the effect on the baby. Preterm labour is a devastating condition because of its outcome for the baby, but there is no evidence that delaying gestation of delivery in women who would otherwise have delivered preterm is of benefit. Indeed, without inhibiting intra-uterine infection/inflammation which often accompanies preterm labour there is potential for harm. Progesterone has some anti-inflammatory properties and is probably beneficial in this regard, and we are currently conducting a study to determine the effects of maternal progesterone on childhood outcomes aged 2 (www.opptimum.org.uk).

In the scenario of acute preterm labour, tocolytic agents may delay delivery for 24 hours or so (which may facilitate transfer to a unit with neonatal intensive care facilities) but again do not improve outcome. In contrast, maternal steroid administration improves neonatal lung function and therefore neonatal outcome, and recent studies suggest that magnesium sulphate can reduce cerebral palsy in infants <30 weeks' gestation.

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INDUCTION OF LABOUR

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Induction of labour is the artificial starting of labour before it begins spontaneously. It is one of the commonest interventions in pregnant women, and in Scotland occurs in around 20% of pregnant women around term. The contraindications to induction of labour are largely those that make vaginal delivery inadvisable – additionally, caution should be exercised in inducing women with a previous caesarean section due to the increased risk of scar rupture.

Prostaglandins are widely used to induce labour, reducing the time from induction to delivery in comparison with other induction agents or placebo. However, there is an accompanying risk of hyperstimulation, which appears

greatest in association with the prostaglandin E1 misoprostol.

Induction of labour is often performed to improve outcomes for the mother or baby. The commonest indication is 'postdates' pregnancy, with evidence from meta-analyses that induction of labour at 41 weeks' gestation or greater reduces perinatal mortality without increasing caesarean section rates.[1] A strategy of 'offering' induction at this gestation is therefore now recommended by many authorities including (in the UK) NICE. A recent randomised study has suggested that in the presence of mild-moderate pre-eclampsia at term, induction of labour reduces maternal morbidity.

In the scenario of pre-labour ruptured membranes at term, induction of labour within 24 hours is associated with reduced risks of chorio-amnionitis, endometritis and neonatal intensive care unit admission compared with a policy of expectant management.[2]

There is much less evidence around the effects of induction of labour for maternal request. The '*a priori*' hypothesis of many obstetricians is that such a strategy increases rates of caesarean section. Our own recent data, based on a large population database, dispute this and suggest that induction of labour at term is associated with significantly lower perinatal mortality in the induced population compared with a comparator group, with no increase in caesarean section rates.

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FIRST-TRIMESTER SCREENING FOR CHROMOSOMAL ABNORMALITIES IN CAPE TOWN

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INTRODUCTION: The aim is to provide a one-stop clinic for assessment of risk to all pregnant women in the first trimester, using a screening test with an expected detection rate of 90% for an invasive testing rate of 5%.

METHOD: Pregnant women referred to the Fetal Assessment Centre between 11 w 3 d and 13 w 6 d were offered biochemistry, free beta-HCG and PAPP A, followed by nuchal translucency (NT) and nasal bone (NB) assessment. Accredited sonologists used Fetal Medicine Foundation (FMF) software for risk calculation. A positive screen was regarded as a risk of 1:300 or more, and these patients were offered chorionic villus sampling (CVS).

RESULTS: 15 821 patients were screened between August 2002 and April 2010; 4 856 women were 35 years or older (30.7%). The risk was 1:300 or more in 614 (3.9%) with 584 CVS procedures done (95% uptake). Therefore 4 272 invasive tests were NOT done in this high-risk group, saving 43 normal fetuses for 2 missed trisomy 21. The detection rate for T21 was 89% (33/37) for NT alone and 93% (32/35) for combination screening. Abnormal biochemistry alone improved the detection rate by 15% (11/72) for T21 fetuses that would have otherwise been missed. Absent NB was a marker in 53% (59/112) chromosomal abnormalities. The screen-positive CVS yield was 17% or 1:6 samples sent for chromosomes.

CONCLUSION: Screening all pregnant women in the first trimester with free beta-HCG, PAPP A, nuchal translucency and nasal bone assessment, in an accredited centre, can detect 93% chromosomal abnormalities for a 3% invasive testing rate. This cost-effective method gives older mothers a non-invasive, life-saving screening option that can be implemented in private as well as academic practice.

INTEGRATING CAUSES OF MATERNAL AND PERINATAL DEATHS

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BACKGROUND: Deciding priorities for maternal, perinatal and child care can be problematic, as different groups have different priorities which they argue are most important. Ideally there should be a robust, objective method with which to decide the priorities.

AIM: To link the causes of maternal and perinatal deaths to identify the priority conditions for maternal, perinatal and child health.

METHOD: The WHO classification of maternal deaths and the MAIN perinatal death classification were applied to the Saving Mothers 2005 - 2007 and Saving Babies 2006 - 2007 data. The maternal conditions are the same in both classifications, so the conditions in mothers who died or whose fetus or neonate died can be linked. The percentage of each maternal condition in maternal deaths and perinatal deaths was used and plotted next to each other to highlight the relative importance. Conditions related to labour, for example postpartum haemorrhage, ruptured uterus, puerperal sepsis, prolonged labour and preterm labour, were grouped as a single category as the clinicians involved in managing the mother, midwives and medical officer/obstetrician are the same and programmes in managing labour are integrated.

RESULTS: The MAIN perinatal death classification links the maternal condition with the fetal-neonatal condition. Unexplained intra-uterine death is the biggest single category and most of the mothers of these babies had no identified clinical condition at the time of death and were regarded as being normal. There are three conditions in the fetus-neonate that are directly related to labour: immaturity due to spontaneous preterm labour, hypoxia/asphyxia related to prolonged, obstructed, hypertonic or precipitous labour, and acute intrapartum event (AIE) due to the same maternal conditions. These are responsible for 70% of preventable fetal-neonatal deaths.

In 2007, 57% of children who died were either HIV infected or HIV exposed, 13% were HIV negative, and in 30% of cases the status was unknown (Saving Children report of 2005 - 2007). In other words, of those children or their mothers who were tested for HIV infection 81% were positive.

CONCLUSION: The three priority areas identified by linking the conditions associated with maternal, perinatal and child deaths are: (*i*) preventing and treating HIV infection; (*ii*) improving the management of labour, which includes improving the resuscitation and stabilisation of neonates (mature and immature); and (*iii*) preventing complications of hypertension in pregnancy.

OUTCOMES OF ABDOMINAL AND LAPAROSCOPIC SACROCOLPOPEXIES USING GYNEMESH PS MESH

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AIM: The purpose of this study was to evaluate the outcomes and complications of abdominal and laparoscopic sacrocolpopexies using the Gynemesh PS mesh assessing objective and subjective measures from these procedures.

METHOD: This was a retrospective study of patients who underwent abdominal and laparoscopic sacrocolpopexies (SCP) for symptomatic pelvic organ prolapse between January 2004 and June 2008 at a single institution. All procedures were performed by a single surgeon. A low-weight, soft, polypropylene mesh PS (Ethicon Inc, Somerville, NJ, USA)

was used to attach the vaginal apex to the sacrum. Pre- and postoperative POPQ measurements were obtained at baseline and at subsequent follow-up visits. Objective failure was defined as POPQ stage 2 or greater. A validated questionnaire on pelvic floor dysfunction was administered to the subjects.

STATISTICS: Descriptive statistics were used to analyse the demographic details, and all results are presented as frequencies, percentages and standard deviations. Non-parametric tests and the Friedman test were used to compare each point of reference of the POP-Q score over time, and the Wilcoxon signed rank test was used to measure change in POP-Q. The McNemara-Bowker test using a normal distribution curve was used to analyse symptoms over time.

RESULTS: Thirty-three patients underwent SCP; 28 had abdominal SCP, 4 laparoscopic SCP and 1 cervicohystero-sacropexy. Patients had a mean age of 62.7 years (32 - 81 years), parity 3.2 (0 - 7), BMI 27.3 (20.8 - 35.7) and POPQ stage prolapse 2.82 (2 - 4); 75% had co-morbid medical problems, with diabetes, hypertension and arthritis being most common. Seventeen had previous abdominal hysterectomies, 15 previous vaginal hysterectomies, and 18 (55%) had previous pelvic reconstructive surgery.

Concomitant surgery was performed in 85% of cases and included TVT, Burch colposuspension, paravaginal and incisional hernia repair. 82% required adhesiolysis. Intra-operative complications included 1 anaesthetic problem, 3 cystotomies and 1 small-bowel injury which were repaired. Postoperative complications occurred in 21% of patients (atrial fibrillation, myocardial infarction, ileus, wound infection and febrile morbidity). The mean operative time was 132.4 minutes (96 - 231) and mean hospital stay 6.2 days (4 - 10). Two deaths were recorded – one from undiagnosed tight aortic stenosis with myocardial infarction on day 2, and the other from cardiac failure (diabetic, hypertensive and previous myocardial infarction) on day 1.

Follow-up data with postoperative POPQ measurements were available on 31/33 patients (93.9%) at 3 months, 29/33 (87.9%) at 6 months and 25/33 (76%) at 12 months. One patient had a vaginal mesh exposure at 5 months (abdominal-vaginal approach). There was significant changes in the mean POPQ scores (Aa, Ba, C, Ap, Bp) from pre-operative to 3 months post surgery and this was maintained at 6 and 12 months ($p<0.001$). There were no failures at POPQ point C. There was one re-operation at 9 months for symptomatic cystocele after laparoscopic SCP. The most common symptom 'something or lump coming down from vagina' was identified in 93.9% of patients and resolved in all patients ($p<0.001$). Backache ($p=0.125$) and constipation ($p=0.122$) did not show statistical improvement after surgery.

CONCLUSION: SCP procedures (abdominal and laparoscopic) using Gynemesh PS propylene is an effective procedure for the management of symptomatic apical vaginal prolapse and is associated with good anatomical and functional outcome. There was no associated mesh erosion. The single case of mesh exposure was from the abdominal/vaginal approach. Subjective assessment of outcome coincided with objective outcomes. Careful patient selection is required for patients undergoing SCP because of the associated morbidity and mortality that can arise.

Conflict of interest: none. The authors received no funding for this study. Institutional ethical permission was obtained.

ENDOSCOPY VERSUS OPEN SURGERY FOR VAGINAL PROLAPSE

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The aim of pelvic reconstructive surgery is to alleviate symptoms, restore anatomy and normalise sexual, lower urinary tract and bowel function. Laparoscopic surgery has advanced exponentially in the last few decades and offers patients the benefits of minimal invasiveness, shorter hospital stay and recovery, less pain and analgesia use, and the psychological and aesthetic advantage of a minimal scar.

Laparoscopy has become popular in urogynaecology and pelvic floor reconstruction, and many procedures that were done by the abdominal route are now being described using the laparoscopic approach. Specific to the cave of Retzius and the pelvic floor, the laparoscope enhances the view and allows for better appreciation of the anatomy and site-specific defects, thus allowing for the treatment of all pelvic defects. Drawbacks to this access is that there is very little tactile feedback, there is a steep learning curve to master the procedures, suturing is technically difficult, and high costs because of disposables and prolonged operating times have limited its use. Recently there has been a further drive with laparoscopic access because of technical advances of optics, needle drivers, integrated systems and robotics. Operations such as Burch colposuspensions, paravaginal repairs, sacrocolpopexies, sacrocolpohysteropexies and uterosacral ligament vault suspensions are now being done via the laparoscope.

But is there any evidence in the literature to substantiate its benefits over conventional surgery? At present there is a paucity of data when comparing the different approaches. Most of the literature addresses descriptive techniques and case reports, often without objective results. There are very few comparative studies addressing symptoms, outcome measures, complications and long-term follow-up between abdominal and laparoscopic approaches. Many critics question whether the laparoscope is a mere diversion or a real advancement in an area fraught with uncertainty with respect to outcome measures.

In this presentation, techniques and a literature review are presented addressing whether laparoscopy is beneficial over laparotomy in the field of urogynaecology and pelvic floor repairs.

AN AUDIT OF THE OUTPATIENT HYSTEROSCOPY CLINIC AT INKOSI ALBERT LUTHULI CENTRAL HOSPITAL, DURBAN

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INTRODUCTION: Hysteroscopy is used extensively for the evaluation of intra-uterine pathology in gynaecology. Interest in performing hysteroscopy (diagnostic and operative) in the outpatient setting has increased in the past 2 decades and this has been made possible by advances in instrumentation, imaging, miniaturisation of instruments and new energy sources. With commissioning of the Inkosi Albert Luthuli Central Hospital, an outpatient hysteroscopy unit incorporating both diagnostic and operative interventions was established in August 2003.

AIM: To evaluate the patient profile, efficacy of the procedure and patient satisfaction in women undergoing hysteroscopic assessment and treatment for intra-uterine pathology from March 2004 to June 2009.

METHOD: Prospective case control study. All patients had a history, examination and ultrasound. A 100 µg indocid suppository was administered 1 - 2 hours prior to hysteroscopy. Verbal anaesthesia was provided by a dedicated sister. The vaginoscopy technique was the preferred method. Scissors, graspers and a versapont bipolar system were utilised for operative work. Prior to discharge, patients were interviewed with respect to pain and satisfaction.

RESULTS: During the 64-month period, 456 patients underwent outpatient hysteroscopy. The majority of the patients were parity 1 - 3, and the commonest age group was

51 - 60 years. Postmenopausal bleeding (210, 46.1%) was the commonest indication. 266 (583%) had one or more medical condition and 177 (38%) had previous surgery. Vaginoscopy was successful in 413 (89.4%). 208 (45%) patients underwent operative intervention, viz. removal of IUCD (21), polypectomy (143), intra-uterine adhesiolysis (16), removal of submucous fibroids (23), and insertion of Essure (5). 20 patients had atrophic endometrium, 143 polyps, 45 endometrial carcinoma and 64 hyerplasia. 357 (78.3%) of patients tolerated the procedure well, 95 (20.8%) had some degree of discomfort and 4 (0.8%) had severe discomfort. In 2 patients the procedure was abandoned.

In the menopausal group (215 patients), 5 patients were referred for removal of longstanding IUCD (>15 years) and all were removed successfully. 146 (69.5%) had co-morbid medical problems. Vaginoscopy was successful in 195 (90%) and 95 (45%) had surgical intervention. Polyps was the commonest histology (79) and endometrial ca was diagnosed in 35 patients. Hysteroscopic assessment suspected 38 patients with endometrial ca and no patient with positive histology was missed on hysteroscopy. In the postmenopausal group, the endometrial thickness varied from 1 mm to 38 mm (mean 11.91), and in the subgroup with polyps, the endometrial thickness varied from 6.82 mm to 38 mm and was suspected in 32 patients. In the patients with endometrial carcinoma, the thickness varied from 4.4 mm to 32 mm with a mean of 14.1 mm.

CONCLUSION: Outpatient diagnostic and operative hysteroscopy is a viable and useful tool in the evaluation of uterine abnormalities and women's health.

CONSERVATIVE SURGERY FOR RECTOVAGINAL ENDOMETRIOSIS

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Endometriosis is one of the most common female diseases and presents as peritoneal, ovarian endometriomas and deep endometriosis, of which rectovaginal nodules are most common. The choice between medical and surgical treatment in the management of rectovaginal endometriosis (RVE) has not been clearly defined, and nor is the role of adjunctive medical therapy prior to or following surgery. However, surgical removal of the disease remains the gold standard of effective treatment with this condition and RVE has become one of the greatest gynaecological surgical challenges. To many it exceeds the complexity of gynaecological oncology surgery.

To date there is still controversy on the aetiology and pathogenesis of RVE. Its common presentation is usually pelvic pain and it may be associated with impaired fertility. A careful history, thorough clinical examination and imaging techniques are pivotal in the diagnosis.

It must be remembered that the management of RVE is to improve the woman's QOL and to address fertility issues when relevant. Incomplete lesion resection does not achieve benefit, whereas radical interventions carry a risk of colorectal and urinary complications. It is therefore important to balance the dilemma of achieving a high success rate of treatment and low recurrence of disease with low complication.

Management has evolved from indiscriminate and often ineffective hysterectomy and oophorectomy to radical excision of all endometriosis with disease-free margins .and an organ-preserving attitude. The following are essential: (*i*) multidisciplinary collaboration and strategies for diagnosis and treatment; (*ii*) surgery should be conducted in specialised centres; (*iii*) surgery is offered when lesions are symptomatic; and (*iv*) surgery should ideally be a 'one-stop surgical procedure'. The surgical approach will be discussed. The aim should be complete removal of the nodule. Complete excision may involve the skinning (shaving technique), discoid resection or segmental resection, and this will be discussed. Further surgical issues that will be discussed include energy sources for the surgery, extent of surgery with infertility, choice of surgical technique, and complications.

OUT-OF-POCKET PAYMENTS FOR ART IN THE PUBLIC SECTOR IN SOUTH AFRICA: HOW DO HOUSEHOLDS COPE?

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INTRODUCTION: In South Africa assisted reproductive techniques (ART) are poorly covered by health insurances or government funding, thereby often inflicting out-of-pocket payments (OPP) on patients. This can create treatment barriers or high financial burdens for the households, with unknown consequences of the latter. This is the first study from South and sub-Saharan Africa to explore the impact of ART-related OPP on households.

METHODS: The study was undertaken at Groote Schuur Hospital, Cape Town, where ART is subsidised but patients have to contribute to the cost of treatment. Eighty-six consecutive IVF/ICSI cycles were prospectively analysed through the patient interview. Data included socio-demographic, economic and infertility information, emotional and financial stress among the participants, as well as coping and financial strategies adopted by the households. In keeping with international recommendations, catastrophic expenditure was defined as a direct cost of all ART cycles in the last 12 months equal to or exceeding 40% of the annual non-food household expenditure.

RESULTS: The majority of couples were married and childless in the union. The average household size was 3.4 people with an average monthly expenditure of R11 872. The mean direct cost of an index cycle was R11 527. According to definition, 35% of households experienced catastrophic health care expenditure. Approximately 40% of households struggled to pay bills and meet basic needs. Nearly 5% of households felt their survival was threatened. The most frequently used financial strategies were accessing savings, borrowing money, and reducing household expenditure on luxury and non-luxury (food, rent, schooling) items. Nearly 50% of couples took on extra work and 1 in 10 households sold assets. Gender differences were observed in treatment-related emotional and financial stress.

CONCLUSION: ART created a large financial burden and caused catastrophic costs in 35% of couples. Couples adopted different financial strategies, many of which have long-term impact. Our results are relevant for patient counselling and highlight problems in reproductive health funding in South Africa.

Funding: The study received financial support from the MRC and the Faculty of Health Sciences, UCT.

PCOS VERSUS THE METABOLIC SYNDROME

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INTRODUCTION: Approximately one-third to one-half of all women and adolescent girls with polycystic ovary syndrome (PCOS) have the metabolic syndrome. This implies that these women are at increased risk for cardiovascular disease and type 2 diabetes.

MATERIAL AND METHODS: Literature search performed to determine the prevalence and predictors of the metabolic syndrome in PCOS.

RESULTS: The prevalence for individual components comprising the metabolic syndrome were: (*i*) waist circumference >88 cm in 80%; (*ii*) HDL <50 mg/dl in 66%; triglycerides >150 mg/dl in 32%; (*iii*) BP >130/85 in 21%; and (*iv*) fasting glucose >110 mg/dl in 5%. Three or more of these individual criteria were present in 33.4%. There was no difference between racial/ethnic groups. None of the women with BMI <27 had metabolic syndrome. Those women in the top BMI quartile had a 14 times higher chance of having the metabolic syndrome.

CONCLUSIONS: The metabolic syndrome and its individual components are common in PCOS. Women with the highest insulin levels and BMI are at the highest risk. Hyperinsulinaemia is a likely common pathogen for both PCOS and metabolic syndrome. Lifestyle modification with increased physical activity and weight reduction remains the first-line therapy.

WHY DID THE OPERATION NOT SUCCEED?

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'It is probably true that every honest surgeon of extensive and long experience will have to admit that he is not entirely satisfied with his long-term results of all his operations for prolapse and allied conditions.' So wrote the famous American surgeon Richard Te Linde in 1966. Sobering words indeed from one many consider to be one of the fathers of modern surgery.

It has been estimated that 30% of patients currently undergoing prolapse surgery will need a second procedure for the same condition. There is a growing feeling among practitioners that results are poor and newer procedures are necessary. However, before we adopt new, expensive and often untried procedures it is important to examine the factors contributing to prolapse.

Epidemiological data give us a better insight into the influence of co-morbidities over surgical success. Lifestyle and work further adjust the outcome.

It is difficult to question traditional surgical procedures without good evidence that new operations are indeed better than the predecessors. The Cochrane review system and the International Consultation on Incontinence have helped us stratify the procedures we currently use. The introduction of new operations sponsored by pharmaceutical companies, accompanied by the appropriate funding, will hopefully lead to the completion of well-planned surgical trials that will answer these questions.

So what about the practitioner? Are some surgeons particularly gifted and capable of achieving better outcomes than others? If so, is a career in surgery only suitable for a small cohort of individuals with a particular aptitude to dexterous tasks? It is not my conviction that only a small number of people are capable of becoming expert at surgery. A far more compelling explanation for surgical skill and good outcomes is the relationship between the amount of surgery performed and outcomes. The literature will suggest that there is a positive linear relationship between volume and outcome. I will explore this subject and examine the relationship between practice and outcome in other fields such as music and the arts.

If this theory is correct it will have implications for the training of our juniors.

MANAGEMENT OF RECURRENT PROLAPSE AND THE HIDDEN DANGERS OF NOVEL PROCEDURES

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Before understanding pelvic organ failure it is important that we understand what failure is. Many patients come to surgery with disproportionate expectations of effective therapy. Inadequate pre-operative counselling will encourage this attitude. It is important that the patient has a clear understanding of what surgery will achieve, what it will not improve and what changes can occur that could adversely affect outcome.

Recurrence could be a reemergence of the original problem or the development of prolapse in a compartment not previously operated on.

Careful evaluation utilising quality of life instruments will result in a far more objective assessment of the condition. Careful investigation of bladder symptoms with pre-operative urodynamics is also essential.

Surgery for pelvic organ prolapse has undergone a major transformation in recent years. The introduction of the sacrospinous fixation and the abdominal sacrocolpopexy improved the outcomes for post-hysterectomy vault prolapse. The Cochrane review cites abdominal sacrocolpopexy as the superior of the two procedures.

It is well known that sacrospinous colpopexy is associated with a high incidence of cystocele formation. There is also a perception that primary repair of the anterior vaginal wall has a very high failure rate. To correct recurrent prolapse, a range of operations have been introduced to try to reduce the incidence. Many of these have come to market with little evidence to support them. Inevitably these are introduced as primary procedures to try to prevent prolapse. Again many have few data to support them.

It is important that we do not abandon surgical techniques without first fully evaluating new procedures. The scientific community has a responsibility to ensure the appropriate introduction of procedures and the pharmaceutical industry should be discouraged from introducing new procedures without adequate data. The IUGA will soon produce a document recommending the minimum standards needed for new procedures.

Surgical training will have a major impact on success rates. Traditionally surgeons have trained in an apprentice style. The implementation of structured training and introduction of limits on the hours of work of junior doctors have reduced the time spent in training and the exposure trainees have to surgical teaching.

An urgent review of surgical training is needed. Utilisation of simulation and cadaveric operating may help fill this gap.

ECTOPIC PREGNANCY: NEW RULES FOR LAPAROSCOPIC MANAGEMENT

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Ectopic pregnancy remains a serious condition for those pregnant women affected by it. In some health care settings many women will be diagnosed with an ectopic pregnancy when it is still unruptured. For some of these women medical treatment can be offered as a treatment option. For women with unruptured ectopic pregnancies who do not qualify for or elect not to have medical treatment, surgical treatment in the form of laparoscopic surgery is the best available option. At laparoscopic surgery the options of salpingectomy or salpingostomy are available depending on the specific circumstances of the patient involved.

The majority of women in South Africa diagnosed with an

ectopic pregnancy will only be diagnosed with the condition when it has already ruptured. The vast majority of these cases will be managed surgically by performing a salpingectomy at laparotomy. Most ruptured ectopic pregnancies can be treated by utilising operative laparoscopic surgery. This will obviously be influenced by the experience of the gynaecologist and anaesthetist, the condition of the patient and the surgical team. The benefits of laparoscopic surgery compared with laparotomy have been demonstrated in a systematic review of randomised controlled trials. In the public health sector most ectopic pregnancies present as ruptured ectopic pregnancies. The majority of these women will be managed by means of a laparotomy. This is because of the current dogma that patients with ruptured ectopic pregnancies are not suitable for laparoscopic surgery. Skills, experience and properly equipped laparoscopic surgical units remain obstacles in the laparoscopic treatment of women with ectopic pregnancies requiring surgical treatment.

EFFECT OF OBESITY ON SUBSEQUENT CHILDHOOD DEVELOPMENT

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Alterations in the fetal endocrine and nutritional milieu are believed to result in developmental adaptations that alter the physiology and metabolism of the offspring. This concept of 'fetal programming' means that individuals are predisposed to metabolic, endocrine and cardiovascular diseases in adult life. Maternal obesity and complications thereof such as hyperglycaemia are probably the most important causes of fetal macrosomia and excess body fat at birth. Childhood obesity is now an important public health problem in the developed world that may result in a reversal of the recent trend of increased life expectancy.

As the obesity epidemic grows, so does the prevalence of the co-morbidities associated with the condition. The co-morbidities of childhood obesity include abnormalities in the endocrine, cardiovascular, gastro-intestinal, pulmonary, orthopaedic, neurological and psychosocial systems. Certain 'adult diseases' such as type 2 diabetes and steatohepatitis are now frequently diagnosed in obese children. Obesity, glucose intolerance and hypertension in childhood are associated with premature death during adulthood, and this risk is independent of obesity in adulthood.

INVOLVEMENT OF PARENT AND CAREGIVERS IN SEXUALITY EDUCATION IN A DEVELOPING COUNTRY CAN PROVIDE AN ENABLING ENVIRONMENT FOR BEHAVIOUR CHANGE COMMUNICATION

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OBJECTIVES: The lives of adolescents are deeply rooted in and influenced by the behaviour of adults and the expectations and norms promoted by the community. Parents and caregivers often do not have the necessary skills to engage in discussions around sexuality. They feel unequipped as there are few resources and teaching aids at their disposal. Schools provide an established venue for intervention. The objectives of this study were to promote communication of sexual and reproductive health issues between parents/caregivers and adolescents to promote an enabling environment and to find out how parents can be effectively involved with adolescents' sexuality education.

METHODS: An extension of an existing in-school life skills programme in schools was done by hosting intervention workshops for parents/caregivers and students. The primary theme of the workshops was to promote communication of issues related to sexual and reproductive health education between caregivers/parents in order to reduce high-risk sexual behaviour. This research reports on a series of workshops that were done. Anonymous questionnaires exploring logistics and needs of such workshops, different activities included in the workshops and active involvement in developing further programmes were completed by parents and adolescents.

RESULTS: Involvement of parents was highly regarded, especially for the knowledge around the sexuality education curriculum that helped to convey supporting messages. In the follow-up workshops the parents reported that the most often used and remembered 'tips' to talk about sexual issues were 'Not to jump to conclusions, i.e. be open-minded' and 'Make use of teachable moments'. The number of times they spoke to their child about sexual issues ranged from every day to 'when needed'. Adolescents, in line with their parents' 'prediction', also consider friends and parents as their main confidantes when talking about sexual issues. However, the parents underestimated the need of the adolescent to talk to them. Topics that learners and parents agreed needed further coverage included HIV/AIDS and STIs, teenage pregnancies, homosexuality and preventive measures including contraception, abstinence and safer sex.

CONCLUSIONS: There is a need for communication on sexuality issues between parents/caregivers and adolescents and with schools. A manual on how to involve parents/caregivers was developed.

KNOWLEDGE, ATTITUDE AND USE OF EMERGENCY CONTRACEPTION IMPROVES AMONG YOUNG AT-RISK WOMEN AFTER COMMUNITY OUTREACH BY LAY COUNSELLORS IN A DEVELOPING COUNTRY

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BACKGROUND: The Adolescent Health Project group at Stellenbosch University in the Western Cape has been disseminating information about emergency contraception (EC) over the past 6 years. The nurses who manage a hotline are also involved in community outreach and have been campaigning EC in local reproductive health clinics where at-risk youth seek family planning care.

METHODS: A cross-sectional descriptive survey study was done to determine knowledge, attitude and use of EC among at-risk women at the two clinics reached by the EC campaign. Youth were evaluated at three clinics: two (site A and B) where advocacy were done and one (site C) where advocacy was not done. One hundred and sixty-seven women participated in the study.

RESULTS: The results showed that 36.7% of the women were familiar with EC at site A youth clinic, 53.85% were familiar with EC at site B, and at site C 17.7% were familiar with EC. A total of 16 participants studied had used EC, and out of those 16, 15 were from either site A or B youth clinic. The majority of the women who participated in the study had had a sexual relationship either currently or in the past (90%) with high pregnancy rates (38%). Almost 75% used injection contraception (77%) and more than half used condoms (61%). Thirty-two per cent had heard of EC, which is a finding supported by previous studies. Nine per cent had used EC, which is twice as high as previous studies. Of note, 85% had a positive attitude towards EC after education. Among 56 responders who had heard of EC, 30 (53.6%) women learned about EC at clinic sites and 17 (30.4%) from friends or relatives.

CONCLUSION: This study demonstrates that the efforts

to improve awareness of EC at site A and B youth clinics have been successful. However, in the face of significant risk of unwanted pregnancy and abortion among sexually active women in this area, the knowledge and practice of EC remains sub-optimal. This study highlights potential areas for improvement in EC education.

MANAGING PRE-ECLAMPSIA FROM 34 WEEKS

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Pre-eclampsia is generally defined as new-onset hypertension and proteinuria after 20 weeks' gestation. It remains a major cause of maternal and perinatal mortality and morbidity in industrialised and non-industrialised countries. The only definite cure is removal of the placenta, which plays a significant role in the development of the condition. Delivery therefore seems the best option for the mother at any gestation, but it may not necessarily be so for the fetus. The decision to deliver or not is based upon gestational age, maternal and fetal condition, and the severity of pre-eclampsia.

The perinatal outcome associated with late preterm deliveries has been the topic of several recent publications. There is a growing pool of evidence indicating an increased risk of adverse outcome among babies born at 35, 36 and 37 weeks' gestation compared with those born at term, including respiratory distress, apnoea, hypoglycaemia, temperature instability and jaundice. The overall neonatal mortality rate is 4.6 times higher, a difference which persists throughout the first year of life and beyond.

Another aspect to consider is whether early- and late-onset pre-eclampsia are indeed the same condition. There are experimental and other data indicating that this may not be so. If not, this should be reflected in our approach to management.

The recently published Hypitat study addressed mild hypertensive disease after 36 weeks' gestation. The conclusion of this multicentre, open-label randomised controlled trial was that induction of labour was associated with improved maternal outcome for women beyond 37 weeks' gestation. However, this study may not have addressed the question we are asking and its findings may not be applicable to our situation.

When confronted with a case of pre-eclampsia at 34 weeks' gestation, other causes of hypertension and proteinuria should be excluded and disease severity should be assessed. Delivery is indicated in severe pre-eclampsia. There is sufficient evidence to recommend continuation of pregnancy in some women with mild disease, but previous pregnancy outcome, underlying medical conditions, hospital setting, patient view and the medicolegal environment may influence decisions in individual cases.

ANALYSIS OF INDICATIONS FOR CAESAREAN SECTIONS IN THE CENTRAL AND EASTERN SUBDISTRICT OF TSHWANE, SOUTH AFRICA

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BACKGROUND: The rate of caesarean section (CS) is increasing both in developed and developing countries. The Robson Ten Group Classification System (TGCS) allows comparison of CS rates, thus providing a framework for auditing and analysing indications for CS. It consists of ten groups that are mutually exclusive, totally inclusive and clinically relevant.

OBJECTIVES: To determine the main contributors towards the rising CS rate using the Robson TGCS.

SETTING: The central and eastern subdistricts of Tshwane comprising Steve Biko Academic Hospital, a tertiary-level hospital, and the immediate surrounding referral area comprising Mamelodi Hospital and Tshwane District Hospital, both level one hospitals. Private hospitals were excluded.

METHOD: Descriptive prospective study of all pregnant women from the central and eastern subdistrict of Tshwane who had a CS in the period 1 July 2008 - 30 June 2009. Data were collected from data sheets and maternity register and analysed according to the Robson TGCS. The following data were extracted from the data sheets: category of pregnancy, previous obstetric record, course of pregnancy and gestation. (The HIV status of the cases was not recorded and impact of HIV on CS rate could not be assessed.)

RESULTS: There were 13 016 deliveries in the subdistrict during the study period. The CS rate was 58% at Steve Biko Academic Hospital, 6.6% at Mamelodi Hospital and 10.4% at Tshwane District Hospital, and the overall CS rate was 22.7%. Group 5 (previous CS, single, cephalic, >37 weeks) had a CS rate of 83.5% and contributed most (28.1%) to all CS. Group 1 (nulliparous, single cephalic, >37 weeks, in spontaneous labour) and Group 3 (multiparous – excluding previous CS, single cephalic, >37 weeks, in spontaneous labour) had CS rates of 15.3% and 9.6%, respectively.

CONCLUSION: Examining CS rates without taking into consideration the context in which the CSs are performed is dangerous and leads to ill-conceived statements regarding CS rates in the country. Group 5 (previous CS at term) accounted for the largest proportion of women having CSs. By avoiding or decreasing the primary CS, this group of patients can be decreased.

IS THERE A 'BEST' SLING?

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The change of surgical approaches to rectify stress urinary incontinence has been quite dramatic over the past decade. Changes in practice sometimes occur without evidence of efficacy, but it would seem that in this instance right decisions were made ahead of the evidence.

Slings are now the most frequently used surgical procedure to correct stress incontinence. There are, however, a great variety of products available. These products can roughly be divided into the retro-pubic slings, the trans-obturator slings and the minimally invasive group of mini-slings.

In reviewing the literature it is clear that there is very little difference in outcomes between trans-obturator slings and retro-pubic slings as far as outcomes are concerned. There are, however, sometimes variations between subjective cure rates and objective cure rates. These will be addressed in the presentation. It is also clear that the retro-pubic slings, whether they are top-down or bottom-up, are associated with more intra-operative adverse events but might well be better in curing patients with intrinsic sphincter deficiency. Trans-obturator slings are associated with more lateral sulcus erosions and thigh pain.

When comparing the outcomes of slings with supra-pubic colposuspensions it would seem that slings are at least as good as and probably better than colposuspensions, with the added benefit of not predisposing to posterior compartment prolapse.

The mini-slings seem to have a marginally lower cure rate than the other two groups, although it would seem that after a learning curve that is probably a bit longer than for the other two groups there might well be no difference. This will also be addressed.

Which type of sling the surgeon uses is less important than proper patient selection and that the sling that is used be inserted properly.

HIV POLICY IN PREGNANCY

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INTRODUCTION: We conducted a cluster-randomised trial to compare the feasibility and acceptance of intrapartum versus postpartum counselling and rapid HIV testing in a midwife obstetric unit and labour ward in a district hospital. The HIV prevalence of women who met the inclusion criteria but chose not to partake in the study was of critical importance. The general perception is that women who know they are HIV positive may choose not to consent for VCT.

METHODS: Fetal cord blood specimens were collected in an anonymous, unlinked fashion from all women approached for study participation, regardless of whether or not they consented to study participation. This anonymous sampling was conducted in a similar fashion to the South African national annual antenatal HIV seroprevalence survey, which is accomplished by obtaining an additional blood specimen, without consent, at the time blood is obtained for syphilis serology and blood grouping from women who book for antenatal care. Cord blood were collected as dried blood spots (DBS) and stored at 4°C. No patient identifiers were included on the cord blood specimens; only the site name, date and time of collection, and the study arm were documented. DBS were analysed for HIV antibody by EIA and WB. 95% confidence intervals (CI) were calculated using exact binomial methods.

RESULTS: Of 7 238 women screened for study participation, 1 041 (14%) had undocumented HIV status, of whom 542 were eligible for the study. Based on 513 anonymous cord blood DBS samples with complete study site and randomisation arm information, the overall seroprevalence among eligible women was 13.3% (95% CI 10.4, 16.5%), similar to the 13.1% seroprevalence (95% CI 9.7, 17.2%) among the 343 enrolled women.

CONCLUSION: The background seroprevalence among eligible women was similar to that among enrolled women, which suggests that study participation did not select for a group with substantially different seroprevalence from those who declined to participate.

CYCLE CONTROL IN ADOLESCENTS AND YOUNG WOMEN

Carol Thomas

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Initiation and maintenance of ovulatory menstrual cycles is the prerequisite for female reproductive function. Prior to the establishment of cyclical bleeding patterns, orchestration of the sensitive feedback mechanisms is dependent on inherent internal and some external factors.

Understanding what represents normal pubertal development and the normal range of menstrual function at the beginning of a woman's reproductive era is crucial to being able to identify abnormal bleeding patterns that require any intervention and management in adolescents and young women.

The adolescent transition is also one where, within our current legal and health care system, young women make the transition from being a paediatric patient to a gynaecological patient. During this phase the input of parents and guardians often influences management, and decision making and implementation and due cognisance needs to be given to this, while respecting the adolescent and young woman as an autonomous patient.

A clinical approach to abnormal bleeding and age-appropriate management strategies is presented.

MICRONUTRIENTS AND TOXINS IN WOMEN WITH RECURRENT MISCARRIAGE

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BACKGROUND: Recurrent pregnancy loss (RPL) affects 1% of all couples trying to conceive and in over 50% of cases the cause for the pregnancy failure is not identified. Nutritional compromise has been recognised as impacting on reproductive performance. Selenium deficiency, in particular, has been cited in both animal and human studies. This study was undertaken to investigate selenium, lead and mercury levels in women who presented to the Reproductive Failure Clinic at Groote Schuur Hospital.

METHODS: We recruited 24 patients with RPL in whom no cause had been found and 24 control subjects who were matched for age and ethnicity and who had at least one successful pregnancy and no pregnancy failures. A trained interviewer completed a questionnaire which incorporated demographic factors, social and dietary histories. Hair samples were then collected and analysed for selenium, lead and mercury, by inductively coupled plasma mass spectrometry.

RESULTS: The control subjects earned a significantly higher income and were also found to have had more years of education than the patients. There was no significant difference between the two groups with regard to intake of selenium-rich foods or exposure to environmental pollutants. Patients consumed higher quantities of cheese, chocolate, fruit and potatoes. The mean selenium concentrations were similar at 1.15 ppm (0.92) (RPL) and 0.98 ppm (0.75) (controls) (p=0.74). Mercury levels were 0.31 ppm (0.09) (RPL) and 0.165 ppm (0.16) (controls) (p=0.64) and were not elevated in either group. The mean lead concentrations were higher among RPL subjects at 8.4 ppm (7.13) v. control subjects 5.12 ppm (4.16) (p=0.04) with 4 RPL and 3 controls having levels higher than internationally recommended concentrations.

CONCLUSIONS: There were significant differences between the two groups with regard to resources, education and diet. Results show that hair selenium concentrations and dietary selenium intake were similar in the two groups and supplementation is probably unnecessary. Lead concentrations were found to be significantly higher in the RPL groups and probably warrant further study.

THE CLINICIAN'S CONTRIBUTION TO THE SUCCESS OF IVF

Marienus Trouw

Live birth rates after IVF have improved over the last 30 years although remaining relatively low. The outcome of IVF is dependent on several factors, and to be successful each of these variables needs to be controlled. The best results are achieved when IVF is performed in a fertility unit setting with a team consisting of a reproductive medicine specialist, embryologist and fertility nurse. Support from an urologist, psychologist and dietician is essential. The physician stands central in the process and as team leader needs not only to have expertise in their own field but also to have sufficient knowledge of specifically the functioning of the IVF lab. The physician's role starts with patient selection and management of lifestyle factors such as obesity, smoking and diet. Preparation before the procedure may include evaluating the uterine cavity, management of hydrosalpinx and endometriosis. The use of adjuvant therapy such as metformin, human growth hormone,

immunotherapy, pill pre-treatment and acupuncture needs to be evaluated. The quality of outcome can be influenced by the number of embryos transferred and the impact on multiple pregnancy rates. Embryo transfer is a critical step and use of ultrasound guidance, catheter type and removal of mucus may improve pregnancy rates. Implantation may be influenced by luteal phase support and assisted hatching, and the role of cortisone and heparin will be evaluated.

FAMILIAL ASPECTS OF PCOS

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The polycystic ovary syndrome (PCOS) is an exceptionally common disorder. Polycystic ovaries are identified in some 20% of women and the PCOS impacts on 5 - 10% of women of reproductive age. There are considerable differences in expression of PCOS which are influenced by environmental factors, dietary and lifestyle input, genetic factors and ethnicity. Essentially the intra-uterine environment impacts on the infant and growth restriction is thought to reset the hypothalamic pituitary ovarian axis, resulting in the baby being more likely to respond to later influences which result in PCOS.

Among women with PCOS there is often a strong family history and first- or second-degree relatives may be affected. Many candidate genes have been explored, but to date no definite genetic disorder has been identified. The discipline of pharmacogenetics is particularly interested in identifying genetic markers that might indicate therapeutic outcomes.

We have looked for familial associations of PCOS among women attending our clinic in Cape Town. Among 83 probands we found that a significant number of mothers, sisters and daughters were affected by PCOS. Elevated BMI and waist-hip ratio are common among women with PCOS in this study, and an adverse lipid profile was often seen in the relatives of women with PCOS.

Attempts have been made to identify a male presentation for the PCOS genotype and to date the only criteria have been early male balding (age less than 30). This has not been substantiated by robust clinical data.

It is obvious that PCOS clusters in families, that the presentation is remarkably similar in siblings and daughters, and that intervention may well impact on long-term health. It is therefore recommended that family studies are undertaken, and once a patient has been identified with PCOS it should be recommended that her sisters and daughters should be screened and that long-term screening should be instituted.

PCOS remains a clinical dilemma and management is an area of controversy. Patients need to be counselled about the need for ongoing assessment and appropriate interventions.

BEST-EVIDENCE TREATMENT FOR ACNE AND HIRSUTISM?

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Hyperandrogenism may manifest itself as acne or hirsutism. There are many factors which influence this, including the cycle of hair growth, distribution of hair, the androgen economy and the genetic predisposition of a particular patient.

Essentially the cause of hyperandrogenism is usually PCOS, although adrenal conditions and other endocrinopathies have to be considered. Careful investigation is essential and treatment aims to correct or suppress abnormal steroidogenesis, increase SHBG and reduce the end-organ impact. Cosmetic improvement is very important and patients need to be encouraged to continue to use cosmetic methods to control hair growth.

Pharmacological treatment is often the mainstay of therapy for clinical hyperandrogenism. Therapy aims at either suppression of androgen secretion or peripheral blockage of androgen action. It is important to ensure that patients understand the timelines for response to treatment and the need for contraception while utilising many of the treatment options.

A Cochrane review that we undertook to assess therapy for hirsutism compared cyproterone acetate with placebo, cyproterone acetate plus ethinyl estradiol and other medical therapies including spironolactone, flutamide and finasteride. There were difficulties in assessing therapy. Many studies were under-powered, and there was a lack of standardised assessments and unclear admission criteria to the studies. Essentially the conclusions were that cyproterone acetate plus ethinyl estradiol improves hirsutism, but the clinical outcomes were not different when compared with other medical therapies. In contrast, the impact on the endocrinological markers varied considerably.

In summary, randomised controlled trials are required with larger patient groups and objective assessment methods to determine the impact of current therapy. Adjuvant therapy may be helpful.

MODERN CONCEPTS OF PUBERTAL DEVELOPMENT

Jacobus van Dyk

Determinants of the timing of puberty are not entirely established. Although body fatness is associated with onset of puberty in girls, genetics and the environment are also thought to play roles in pubertal onset. Variations in the timing of pubertal maturation may be sensitive 'sensors' of the effects of environmental exposure in human populations.

Age of onset of puberty in girls has fallen in the past two decades. A study of 1 239 girls in Harlem, Cincinnati and San Francisco showed that nearly a quarter of black girls (23.4%), 14.9% of Hispanic girls and 10.4% of white girls developed breasts by the age of 7.

Negative impacts associated with early puberty in girls include increased risk of breast or endometrial cancer later in life, and psychological troubles ranging from low self-esteem and eating disorders to depression and suicide.

WHEN IS FOREIGN MATERIAL CONTRA-INDICATED?

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INTRODUCTION: The use of mesh in reconstructive pelvic floor and urinary incontinence surgery has become more popular in the past decade with the attempt to improve surgical outcome. The TVT has revolutionised incontinence surgery and subsequently the use of synthetic mesh for reconstructive pelvic floor surgery, as with the abdominal sacrocolpexy and transvaginal procedures. Controversy still remains, more so with the use of transvaginal mesh for reconstructive pelvic organ prolapse surgery. Currently there is still a big drive to establish the use and place of transvaginal mesh for the correction of pelvic organ prolapse.

AIM: The aim of this presentation focuses on indications versus contraindications and relative contraindications to the use of mesh in reconstructive pelvic organ prolapse surgery and stress urinary incontinence.

METHOD: A Pubmed literature search was performed.

RESULTS: At present evidence-based medicine cannot guide clinical practice for pelvic organ prolapse reconstructive

surgery. Native tissue repairs have been compared with biological grafts, but a non-absorbable synthetic mesh may improve anatomical outcomes. However, long-term outcome is not yet available and risk involves erosion, infection and pelvic pain with possible effect on bowel, urinary and sexual function. The most important properties are the type of filament, tensile strength and porosity. The ratio of complications of mesh used transvaginally for urinary incontinence versus pelvic organ prolapse is 1:3. Risk factors pre-operatively identified for possible erosion included obesity, smoking, ageing and surgical experience. A recent FDA report on vaginal mesh advised on associated litigation. It emphasises that the gynaecologist should be familiar with anatomy, skilled in the performance of the surgical procedure, and able to manage possible complications. Informed consent is mandatory where all risk is disclosed.

CONCLUSION: The individual woman's surgical history and goals for individual risk for surgical complications and sexual activity needs to be brought into account in decision making regarding definitive surgery. Efficacy and safety for transvaginal mesh has not been established as yet owing to lack of long-term data. Informed consent is mandatory. For the future, there is still a need to determine the correct biocompatible material and proper indications for graft augmentation in transvaginal surgery.

NEW INSIGHTS INTO COLLAGEN?

Frans van Wijk

Collagen is the major building block of pelvic floor support structures. Evaluation of collagen composition and quality is therefore important in incontinence, pelvic organ prolapse and response to surgical treatment with and without mesh.

Collagen is a natural protein only found in animals and is the most abundant protein in mammals. It makes up about 30% of the whole body's protein. The collagen molecule or tropocollagen is part of the aggregate of collagen known as fibrils. The molecule consists of 3 left-handed polypeptide strands. It is then twisted together in a right-handed supercoil, stabilised by hydrogen bonds. This is microfibril, which is unstable but interdigitate with other fibrils to form a stable crystalline structure. The amino acid, proline, is abundant in collagen accounting for the structural function. Sections of the molecule not high in protein interact in the extra-cellular environment as cell phenotype, cell adhesion and tissue regulation. Collagen fibrils are semi-crystalline aggregates of collagen molecules. Collagen fibres are bundles of fibrils.

Twenty-nine types of collagen have been described in the body, of which the first 5 form 90% of the collagen. Type 1 is most abundant and tough, and types 3 and 5 are more reticular and in interstitial tissue and granulation produced by younger fibroblasts.

Studies show that the effect of collagen on the support mechanisms of the pelvic floor differs pre- and post menopause. Premenopausal women with SUI have a higher concentration of collagen 1 and 3 as well as thicker fibre diameter and more cross-fibres. Postmenopausal women present with normal ageing changes in ECF composition but not only in SUI patients. Oestrogen replacement will improve connective tissue composition after menopause. Studies are not universal in findings of the effects of collagen in pelvic organ prolapse and incontinence. Most of the newer studies concentrate on the metabolic issues of the extra-cellular fluid. The effects will be discussed.

THE R563Q MUTATION OF THE BETA-SUBUNIT OF THE EPITHELIAL SODIUM CHANNEL GENE AND HYPERTENSIVE DISEASE AND RELATED COMPLICATIONS IN PREGNANCY

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INTRODUCTION: Hypertensive disease is a cardinal cause of maternal morbidity and mortality in South Africa. According to the National Confidential Enquiry into Maternal Deaths (NCEMD) report 2005 - 2007, hypertensive disease, as a direct obstetric cause of death, is in second place (15.7%). Early identification and treatment of hypertensive disease remains an important priority in improving maternal care. A continued search for an early diagnostic modality could facilitate a reduction in maternal morbidity and mortality.

AIMS: To determine the prevalence of the R563Q mutation of the β-subunit of the epithelial sodium channel (β-ENaC) gene in primigravid women with hypertensive disease in pregnancy and to compare pregnancy outcomes with those not identified to be mutation bearers.

METHODOLOGY: A retrospectively collected study cohort with early-onset pre-eclampsia, obtained from pooled samples and data from the GAP study, was used. The planned sample size was 200, with 200 controls (ethnic-matched, normotensive women). Exclusion criteria were gestation beyond 34 weeks, multiple pregnancy, known underlying collagen vascular disease and type I diabetes mellitus.

OUTCOME CRITERIA: Pregnancy outcomes were analysed with respect to the degree of hypertensive disease and related complications (maternal, placental and neonatal).

RESULTS: Samples from 104 patients and 80 controls were analysed. Pre-eclamptic patients were significantly younger than controls ($p<0.0001$). The presence of the mutation was not significantly increased in the pre-eclamptic group ($p=0.33$). The mutation bearers did not exhibit a significant tendency towards a specific degree of pre-eclampsia ($p=0.51$). There were no significant differences in the other outcome measures studied. A composite outcome did not differ between the mutation-positive and negative pre-eclamptic patients. Combined odds ratios were calculated, combining the data from a prior relevant study with the index data. The increased mutation frequency among pre-eclamptics compared with healthy controls then remains significant, OR 2.57 (95% CI 1.23 - 5.36).

CONCLUSION: In this study the R563Q mutation of the β-subunit of the epithelial sodium channel gene was not linked to pre-eclampsia. No significant negative correlation could be established between the presence of the mutation and the pre-eclampsia outcome. Further research in chronic hypertensives and unstable pre-eclampsia in larger groups could shed more light on the relation between the mutation and the pre-eclamptic phenotype.

MANAGEMENT OF LAPAROSCOPIC COMPLICATIONS

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Over the past 2 decades laparoscopic surgery has developed into a major tool in gynaecology. Initially used as a diagnostic tool, it now allows gynaecologists to perform almost any surgery previously only performed by laparotomy.

The frequency of indications, the increasing number of surgeons performing laparoscopic procedures, new instrumentation and the increasing number of major laparoscopic procedures have given rise to new types of complications as well as the general increase in frequency of previously known complications. Therefore, complications related to laparoscopy in gynaecological patients are not uncommon.

A review including over 1.5 million gynaecology patients reported complications in 0.1% to 10% of procedures. Over 50% of these complications occurred during entry and port placements and 20 - 25% of complications were not recognised until the postoperative period. One survey reported results from claims arising from entry access injuries between 1980 and 1999 and entry using medical device reports to the FDA.

The incidence of entry injury was 3 - 30 per 10 000 procedures. Bowel and retroperitoneal vascular injuries comprised 76% of all injuries and almost 50% of bowel injuries remained unrecognised for at least 24 hours, leading to a marked increase in morbidity and in some cases even mortality. The type and proportion of organ injury during entry alone was: small bowel 25%, iliac artery 19%, colon 9%, mesenteric vesels 7%, aorta 6%, IVC 4%, abdominal wall vessels 4%, bladder 3% and liver 2%. This was during entry alone, excluding intra-operative complications.

The need for prompt recognition and immediate proper management of all operative laparoscopic complications can therefore not be over-emphasised. During the discussion we shall therefore take an in-depth look into how to recognise and manage such complications.

OESTROGENS VERSUS STATINS FOR THE HEART

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Cardiovascular disease may be the single most important cause of death in women, but its event rate is relatively low, which makes clinical research into this matter quite difficult. Evidence-based management of cardiovascular risk factors in women is still inconclusive because of the extremely large numbers needed to prove a significant difference in outcomes. A wide variety of confounding variables also have a significant influence on cardiovascular risk factors as well as on the outcome of any study in this regard. As women age, their cardiovascular disease risk becomes similar to that of men. Sex differences for cardiovascular disease become closer with age and medical intervention seems to have similar effects.

Several criteria may be considered when discussing the effect of either oestrogen or statins on cardiovascular health. The effects on the lipid profile, atherosclerosis, ischaemic heart disease, plasma homocysteine and C-reactive protein should all be considered.

PRIMARY PREVENTION OF CORONARY HEART DISEASE (CHD): Statins: Only one randomised controlled trial (RCT) which included women was found. It showed fewer CHD events but no difference in mortality rate. **HRT:** The only RCTs were the WHI and WISDOM studies. There are, however, numerous reports of positive observational epidemiological studies for HRT. HRT is appropriate for its multiple effects on lipoproteins, vascular function and insulin sensitivity, but also for prevention of osteoporosis.

SECONDARY PREVENTION OF CORONARY DISEASE: Statins: The major measurable effect of statins is to reduce total cholesterol and LDL cholesterol levels. In the CARE study, ±20% of subjects were women in whom coronary events were reduced but not CHD or total mortality. **HRT:** The HERS study showed a neutral outcome for patients on HRT with no reduction in CHD or mortality rate. Some observational studies however were positive for HRT.

CONCLUSION: The effects of treatment with statins, HRT in combination with statins or HRT alone will be discussed in more detail.

IS AN EDUCATIONAL INTERVENTION AND ALGORITHM EFFECTIVE IN IMPROVING THE DIAGNOSIS AND MANAGEMENT OF SUSPECTED ECTOPIC PREGNANCY AT TYGERBERG HOSPITAL?

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STUDY OBJECTIVE: To investigate whether an educational intervention and the introduction of an algorithm for the work-up of suspected ectopic pregnancy (EP) in the Gynaecology Department at Tygerberg Hospital improved accuracy of the diagnosis and appropriateness of treatment options offered to women with suspected EP.

METHODS: A retrospective cross-sectional before-and-after study was performed, including 335 consecutive patients with suspected EP before (1 March - 30 June 2008) and after (1 September - 31 December 2008) 'the intervention'. From the gynaecological admissions register all pregnant patients with symptoms potentially compatible with EP were selected, and these were cross-referenced with beta-hCG requests, entries in the theatre register for surgery for possible EP and methotrexate prescriptions for EP in these time periods. 'The intervention' consisted of a formal lecture regarding the latest evidence-based guidelines and the introduction of an algorithm based on this information together with a prescribed ultrasound reporting form. Clinical decisions were left to the registrar and consultant on duty.

Primary outcomes: Time from presentation to treatment, number and appropriateness of special investigations, surgical procedures or medical management.

Secondary outcomes: Number of inpatient days and visits, adherence to the algorithm.

RESULTS: There was a trend towards improved reporting of the uterine content and there were significantly less reports of definite signs of an intra-uterine pregnancy (IUP) ($p<0.001$, RR 0.46, 95% CI 0.31 - 0.70) due to stricter ultrasound criteria being followed. There were fewer beta-hCG requests at presentation ($p=0.05$, RR 1.60, 95% CI 0.99 - 2.59) as well as significantly fewer inappropriate ($p<0.001$) and repeat ($p=0.02$) tests. Significantly fewer manual vacuum aspirations (MVAs) were performed ($p=0.003$, RR 0.51, 95% CI 0.32 - 0.81), but no changes in other treatment modalities or other primary outcomes were found. Adherence to the algorithm was poor (59%).

CONCLUSIONS: Except for a significant decrease in MVAs being performed, the improvement in the use of special investigations after 'the intervention' did not translate into fewer cases with inappropriate diagnosis or management. Non-adherence to the algorithm, however, was high. Widespread implementation of the algorithm with continuous audit is therefore needed before the true efficacy of the algorithm can be assessed.

Poster Presentations

PROVIDING SEXUAL AND REPRODUCTIVE HEALTH CARE IN EMERGENCY AND POST-EMERGENCY SETTINGS: THE EXPERIENCE OF MÉDECINS SANS FRONTIÈRES

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Médecins Sans Frontières

INTRODUCTION: During conflict and natural disasters, maternal and infant mortality increase and sexual violence soars. Reproductive health and obstetric services often become unavailable as already fragile health systems are destroyed. Young people are more vulnerable to HIV infection and sexual violence. The objectives of this study are to describe the sexual and reproductive health services provided by Médecins Sans Frontières (MSF), a medical humanitarian organisation, in emergency and post-emergency settings.

METHODS: During acute emergencies, basic and comprehensive emergency obstetric care and a limited essential package of antenatal, neonatal, postnatal care, family planning, abortion, sexual violence, and genital tract infections services are provided. In post-emergency settings, a more comprehensive package of the above services as well as obstetric fistula and prevention of mother-to-child transmission of HIV/AIDS care are given. Basic indicators were collected in all projects and these data were retrospectively analysed for 1 January - 31 December 2009.

RESULTS: In 2009, MSF-Belgium provided sexual and reproductive care in 61 projects in 19 countries (Sierra Leone, Democratic Republic of Congo, Burundi, Afghanistan, Columbia, Guinea-Conakry, Niger, Haiti, Malawi, Mozambique, Ethiopia, South Sudan, North Sudan, Liberia, South Africa, Kenya, Pakistan, Lesotho and Somalia). There were 53 995 deliveries attended by skilled attendants, 300 000 antenatal care consultations, and 160 000 family planning consultations. There were 2 918 caesarean deliveries, which accounted for more than 30% of all operations performed by MSF. Ten projects enrolled 5 960 women in PMTCT and 38 projects treated 3 263 victims of sexual violence, 156 obstetric fistula repairs in 5 projects were performed, and 25 expatriate midwives and 12 obstetricians provided field support and clinical care. Numerous trainings for local staff were also given.

CONCLUSIONS: Non-governmental organisations can provide valuable sexual and reproductive health services in emergency and post-emergency settings where governmental services have been destroyed or are non-existent. Continued expansion of care and improved assessments of the quality of care are needed. The role of caesarean delivery is essential and efforts to augment comprehensive emergency care are underway. As countries move into the post-emergency phase, transfer of skills to local providers is essential.

A MODEL OF EMERGENCY COMPREHENSIVE OBSTETRIC CARE IN BURUNDI BY MÉDECINS SANS FRONTIÈRES

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INTRODUCTION: Maternal and neonatal mortality are unacceptably high in Burundi. The maternal mortality rate is 855 per 100 000 live births and the neonatal mortality rate is 32 per 1 000 live births. In many areas of the country, referral centers for obstetric complications are non-existent. In 2008, MSF established the Center for Emergency Obstetrics and Gynecology (CURGO) in Burumbura rural province, Burundi, in order to provide emergency comprehensive obstetric care for a population of approximately 600 000 inhabitants. The objective of this study is to describe this model of care and its outcomes.

METHODS: CURGO is staffed by Burundian nurses, midwives and doctors under the supervision of MSF and serves as a referral hospital for 20 health centers. Women with obstetric complications are transferred by ambulance; all care is free of charge. Services include basic emergency obstetric care as well as safe caesarean delivery, hysterectomy, blood transfusions, and low birth weight and sick newborn care. A maternity waiting home improves access to care for high-risk pregnant women from rural areas. In 2009 an obstetric fistula programme was initiated. Routinely collected data from 1 January to 31 December 2009 were retrospectively analysed.

RESULTS: In 2009, 2 325 women were transferred to CURGO for emergency obstetric care. Prolonged labour (29%) was the most common reason for transfer. Other causes included antepartum/postpartum haemorrhage (7%), malpresentation (7%) and premature rupture of the membranes (5%). Of 1 995 obstetric procedures, there were 703 (35%) caesarean deliveries, 431 (22%) unassisted vaginal deliveries, and 266 (13%) assisted vaginal deliveries. Of 2 158 pregnant women treated, 4 maternal deaths resulted in a case fatality rate of 0.2%. The neonatal mortality rate was 2.7% (45 deaths/2 685 live births).

CONCLUSIONS: This comprehensive emergency obstetric centre provides life-saving services for pregnant women in Burundi, a country with staggeringly high maternal and neonatal mortality rates. Efforts to improve transfer diagnoses and to expand services in the health centers are underway. The ultimate objective of MSF is to hand over the facility to the Burundian Ministry of Health. However, the lack of skilled health care providers, necessary drugs and ability to maintain the infrastructure will make this a challenge.

ECTOPIC PREGNANCY: THE ULTRASOUND VERSION

Fatima Gani

Ectopic pregnancy means 'out of place', the egg settling in the fallopian tubes in 98% of cases. Less frequently it occurs in other locations such as the ovary, cervix, abdominal cavity or within a caesarean scar. Risk factors include tubal ligation, tubal surgery, IUCDs, IVF and ovulation induction. The signs and symptoms are nausea, vaginal bleeding, dizziness, hypotension, and extreme lower abdominal and back pain. The major health risk of ectopic pregnancy is rupture necessitating urgent surgical intervention. Ultrasound remains the gold standard in detecting ectopic pregnancy. A pregnancy can be detected on vaginal scan as soon as 4 weeks and 3 days after the LMP or if the beta-HCG levels are above 1 500 mIU/ml. An intra-uterine pregnancy can be recognised as a dark oval shape surrounded by trophoblastic tissue in the endometrial cavity. A tubal ectopic will be seen less than 5 mm from the myometrial mantle and lateral to the insertion of the round ligament. A cervical pregnancy features an hourglass uterus with intracervical location of a gestational sac. Diagnosis of an ovarian ectopic can be tricky as the appearance can mimic a ruptured cyst. The presence of trophoblastic tissue and a fetal pole will aid diagnosis. An abdominal pregnancy has no myometrial tissue between the maternal bladder and the pregnancy. The uterine cavity is empty with an unusual fetal lie, oligohydramnios and poor definition of the placenta. There is an embedded mass in the caesarean scar of a caesarean ectopic with trophoblastic tissue between the anterior uterine wall and the maternal bladder. A heterotopic pregnancy will show an intra-uterine pregnancy and an ectopic pregnancy simultaneously. Abdominal scans enable better evaluation of the superior uterus, adnexa, free peritoneal fluid and intra-abdominal haemorrhage. Further definition can be achieved with a higher-frequency transducer. Vaginal scans provide a detailed evaluation of the endometrial cavity and ovaries with superior near field resolution. Arterial Doppler flow of the uterine tube containing the ectopic pregnancy is 25 - 45% higher than the opposite side and demonstrates a high-velocity and low-resistance flow in the adnexal mass. US is also useful in the direct guidance of methotrexate injection into the ectopic pregnancy. US is a cost- and time-effective invaluable tool in the diagnosis of ectopic pregnancy. Speedy diagnosis can save the life of the mother, but a false-positive diagnosis can lead to the loss of a viable pregnancy. Meticulous, skilful technique teamed with quality equipment is therefore of the utmost importance.

INDICATIONS AND ACCEPTANCE RATE FOR LATE TERMINATION OF PREGNANCY FOR SEVERE FETAL ABNORMALITIES

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AIM: To assess the indications and acceptance for termination of pregnancy for severe fetal abnormality beyond clinical viability.

METHOD: A retrospective chart review of women who were offered late termination of pregnancy (TOP), i.e. ≥24 weeks, for severe congenital abnormalities during the period August 2003 - October 2008 at the Fetal Medicine Unit of the Inkosi Albert Luthuli Central Hospital, was undertaken. Information was obtained from the hospital database. The patient demographics and types of fetal anomalies were analysed and compared according to the group that accepted or declined late TOP. The study received ethical and institutional approval. Frequency tables and cross-tabulations were used to describe the distribution of the data.

RESULTS: During the study period a total of 4 173 women were seen at the Fetal Unit, and of these 2 209 were ≥24 weeks' gestation at first presentation. TOP for severe congenital abnormalities was offered to 253 women, of whom 191 (75%) accepted. There was no significant difference in the maternal age, parity, race or gestational age between the groups. The most frequent indication for late TOP was brain abnormalities (59%), followed by aneuploidy (14%). Ninety per cent of women with multiple congenital abnormalities, 73% with brain abnormalities and 61% with confirmed aneuploidy accepted late TOP (p=0.05). Hydrocephalus (58%) was the commonest brain anomaly diagnosed. Trisomy 18 was confirmed in 17/34 (50%) women with aneuploidy, of whom 11 accepted late TOP.

DISCUSSION/CONCLUSION: Unlike reports from developed countries, the most frequent congenital abnormality among our referrals involved the brain, followed by aneuploidy. Our findings also suggest that the type of fetal anomaly rather than the demographic details of the women or the gestational age of the fetus impacted on their decision to accept/decline late TOP.

PLACENTA LEFT *IN SITU* IN AN EXTRA-UTERINE, PRE-ECLAMPTIC PREGNANCY: CASE PRESENTATION AND LITERATURE REVIEW

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BACKGROUND: Few extra-uterine pregnancies make it to viability. Fewer end up in live births. At abdominal delivery of a live fetus, should we leave the placenta *in situ* or remove it? In an interesting case of a viable extra-uterine pregnancy, the placenta was left *in situ* during laparotomy and did not resolve after 1 year post delivery.

OBJECTIVES: After delivery of the live extra-uterine fetus, should we routinely remove the placenta?

METHODS AND SETTINGS: Case study and literature review on the management of viable extra-uterine pregnancies.

RESULTS: Leaving the placenta *in situ* is associated with a high risk of re-laparotomy, infection, abscess, pelvic adhesions, intestinal obstruction and wound dehiscence. If there is no haemorrhage and the patient is stable, the placenta can be left *in situ*. There is a high risk of morbidity and mortality if the placenta is left *in situ*. Methotrexate is not advised, as it causes necrosis with severe inflammatory response. It can take 1 - 5 years for complete placental resorption to take place. Expectant management of patients with pre-eclampsia and extra-uterine pregnancies is, however, a viable option in low-resource neonatal care facilities in a controlled environment. If the placenta is adherent or when bowel or vascular structures are involved it is safer to leave it *in situ*. If a re-laparotomy is then necessary it is usually associated with less morbidity than primary removal of the placenta.

CONCLUSIONS: During the laparotomy it is preferable to remove the placenta. Methotrexate should not be administered.

ERGOMETRINE AT CAESAREAN SECTION

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BACKGROUND: After caesarean section an oxytocin infusion is generally the only uterotonic prescribed. Is this sufficient to prevent postpartum haemorrhage after a caesarean section due to uterine atony in women at risk for postpartum haemorrhage due to uterine atony?

OBJECTIVES: To assess whether the addition of ergometrine after caesarean section for patients at risk of PPH due to uterine atony is of any benefit.

METHODS AND SETTINGS: A prospective audit over a 4-month period from mid-February to mid-June 2006 encompassing a 2-month period before and after changing policy of uterotonic treatment at caesarean section in a London tertiary hospital.

RESULTS: Overall there were no major differences in the haematological indices. The most common side-effects encountered were nausea and vomiting. In the oxytocin-only group the prevalence of nausea was 4% compared with 23% in the combined group, and for vomiting the figures were 5% v. 12%, respectively. Around 89% of the oxytocin-only group had no side-effects compared with 63% of the combined group. Other side-effects encountered were 2% in both groups, which included raised blood pressure, palpitations and flushing. During the study period 3 women suffered massive delayed postpartum haemorrhage due to uterine atony in the recovery room. None of these received prophylactic ergometrine.

CONCLUSIONS: Delayed uterine atony with massive postpartum haemorrhage did not occur when ergometrine was combined with a bolus of oxytocin during caesarean section, compared with 2% when it was not used. Women receiving ergometrine experienced more side-effects. Delaying administration of the ergometrine until closure of the rectus sheath at surgery and administering routine anti-emetics prophylactically may reduce these complications and is reasonable in women at increased risk of postpartum haemorrhage in whom it is not contraindicated.

POLYCYSTIC OVARIAN SYNDROME

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Private practice

BACKGROUND: Polycystic ovarian syndrome is one of the commonest endocrinopathies in women of reproductive age. The prevalence of the disease is estimated to be around 5% in general population (Azziz, 2004). Literature on the prevalence of PCOS in black women is limited (Knochenhauer, 1998). This syndrome is a diagnostic conundrum due to the phenotypic variability of these women. The PCOS woman also has a greater disposition for impaired glucose homeostasis as well as hyperlipidaemia.

OBJECTIVE: The hormonal and metabolic profiles of South African women with PCOS have not been described. Ethnic differences in the prevalence of PCOS have also not been well explored. Our study aims to describe and compare the phenotypic profiles of black and Indian women with PCOS and to determine the frequency of insulin resistance and hyperlipidaemia in these women.

METHODS: A retrospective audit of all patients attending gynaecology endocrine and infertility clinics over the period June 2005 - June 2009 was carried out. The biochemical and clinical profiles were analysed and a comparative analysis between the two largest groups, Indian and black women, was done. All women who attended these clinics were subjected to a fasting lipogram and fasting serum glucose. An abnormal fasting serum glucose would have necessitated a full glucose tolerance test.

RESULTS: There was a high prevalence of raised body mass indices. The most common presentation was menstrual irregularities. There was a trend of Indian women having a higher prevalence of glucose intolerance compared with black women.

CONCLUSION: The prevalences of insulin resistance and hyperlipidaemia in local women with PCOS were 50.9%.and 12%, respectively. Menstrual irregularities and infertility are the most frequent presenting complaints of women with PCOS. Features of hyperandrogenism are not common presenting complaints in South African women. There are no differences in the hormonal and clinical profile of South African Indian and black women with PCOS, but there is a trend toward Indian women having a higher prevalence of glucose abnormalities than black women. We recommend further studies in the management of the metabolic abnormalities in local women

with PCOS, in an attempt to develop a protocol to manage the metabolic complexities of PCOS.

PREGNANCY OUTCOME IN WOMEN WITH PROSTHETIC HEART VALVES

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OBJECTIVE: To determine the maternal and fetal outcomes of pregnant women with prosthetic heart valves.

METHODS: Retrospective study of 61 pregnant women with prosthetic heart valve prosthesis delivering at Inkosi Albert Luthuli Central Hospital over a 5-year period from January 2005 to December 2009. Data were captured on a structured proforma from the Hospital Medicom database.

RESULTS: Fifty-nine women had a mechanical heart valve and 2 had tissue valve replacement. The valves replaced were mitral (80%), aortic (2%) and mitral and aortic (19%). Three women on anticoagulation therapy stopped medication on their own accord during pregnancy. Twelve of the 61 pregnancies ended as miscarriages and of the remaining 49 pregnancies there were 41 live births, 6 stillbirths and 2 early neonatal deaths. All women who had miscarriages took warfarin in the first trimester. There was 1 maternal death. Maternal morbidity occurred in 35/61 (57%) of women: mitral valve thrombosis (4), atrial fibrillation (8), infective endocarditis (6), caesarean section wound haematoma (7), broad-ligament haematoma (1), warfarin embryopathy (4) and bleeding complications requiring blood transfusion (5).

CONCLUSION: Women with prosthetic heart valves on warfarin anticoagulation have a high incidence of fetal wastage in the first trimester of pregnancy. This also resulted in stillbirths to 6/49 (9%). In patients exposed to warfarin between 6 and 12 weeks in our series, 4 had more than 2 signs of warfarin embryopathy on ultrasonography. Vigilant antenatal care is essential to try to prevent the associated high maternal morbidity.

Education of patients on the need to present to health care professionals once a menstrual period is delayed so that pregnancy can be diagnosed and warfarin changed to heparin in the pivotal period of 6 - 12 weeks' gestation is essential to minimise fetal warfarin embryopathy. In addition, health professionals caring for women in under-resourced countries must consistently advise on family planning matters and adherence to anticoagulation regimens.

SHOCK-ASSOCIATED ISCHAEMIC COLITIS FOLLOWING MASSIVE OBSTETRIC HAEMORRHAGE

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Ischaemic colitis, although rare, is associated with a high mortality rate, especially if the right colon is involved. Gangrenous ischaemic colitis usually presents diagnostic and therapeutic problems associated with poor survival. Two types are described, viz. type I, spontaneous development of colonic ischaemia secondary to occlusive or non-occlusive vascular disease, and type II, ischaemia associated with hypovolaemic shock. Ischaemic colitis in pregnancy, while rare, usually involves the left colon and is usually associated with high circulating oestrogen levels A case of ischaemic colitis following haemorrhage at the time of caesarean section is presented.

POST-PARTUM ANAL INCONTINENCE IN A RESOURCE-CONSTRAINED COUNTRY: IS THERE A VARIATION IN INCIDENCE BETWEEN BLACK AFRICANS AND INDIANS?

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Anal incontinence (AI) in women is an embarrassing and debilitating emotional, psychological and social problem. Women rarely complain of AI in the postpartum period unless specifically asked, resulting in an underestimation of the incidence. Studies suggest an association between obstetric factors following delivery and altered continence. Most studies on AI have been performed in well-resourced countries and we are not aware of any studies carried in a resource-constrained country such as ours. This prospective study was conducted in the black African and Indian population of KZN, South Africa.

The antenatal prevalence of incontinence of flatus was 26.2%, with a 6-week post-delivery incidence of 61.1% and a 6-month persistence of 6.4%. Increasing parity was associated with an increased incidence of incontinence of flatus and faeces at 6 weeks post delivery and a decline in persistence at 6 months. Inter-racial variation in the incidence of AI was significant, with incontinence of flatus being higher in black Africans compared with Indians (63.2 v. 53.1% (p=0.018) at 6 weeks and a persistence of 6.3% v. 6% (p=0.858) at 6 months). Incontinence of faeces, although not statistically significant, was higher among the Indians (6.2% v. 5.2% (p=0.59) at 6 weeks with a persistence of 1.5% v. 0.9% (p=0.4) at 6 months). There were also significant differences in the prevalence of AI between women delivered by elective CS and those who delivered either vaginally or by emergency CS.

This study highlighted that AI is a common problem postpartum in our setting and that there is an inter-racial variation in incidence.

CORRELATION BETWEEN WARFARIN DOSE AND MATERNAL AND FETAL OUTCOMES IN PREGNANT WOMEN WITH PROSTHETIC HEART VALVES

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AIM: To determine the correlation between warfarin dose and maternal and fetal outcomes in pregnant women with prosthetic heart valves who followed a local anticoagulation protocol and received obstetric care at Steve Biko Academic Hospital, a tertiary referral hospital in Pretoria, South Africa, from January 2005 to August 2009.

METHODS: A prospective observational study of pregnancy outcome in women with mechanical heart valves who received the following anticoagulation protocol: unfractionated subcutaneous heparin (titrated to a therapeutic partial thromboplastin time) given, when possible, from pregnancy detection until 12 weeks' gestation followed by warfarin from weeks 12 to 35 (target INR 2.5 - 3.5) then UFH until elective caesarean section (CS) at 38 weeks with the morning dose of UFH withheld prior to CS.

RESULTS: Sixty-two pregnancies were managed during the study period. Fifty-one women had mitral valve prostheses, 2 had aortic and 9 patients had double valve prostheses. The mean gestational age at booking was 16 weeks. Forty-one women booked after the first trimester and were exposed to warfarin during the teratogenic period. Fifteen patients lived in Pretoria, 13 patients were referred from outside Pretoria but within the Gauteng province, and 34 patients were from other provinces.

Fetal outcome: There were 5 cases of warfarin embryopathy. In 2 of these cases maternal warfarin use was 5 mg or less in the first trimester. In the remainder of the pregnancies, fetal outcome was analysed in 3 groups depending on the maternal

dose of wafarin. In group 1 (*N*=26) the maternal warfarin dose was 5 mg or less, in group 2 (*N*=20) it was 5.1 - 7.4 mg, and in group 3 it was 7.5 mg or more. The live birth rates were 64%, 60% and 45%, respectively, in the three groups. There was no difference in birth weight between the three groups. There were 8 miscarriages (35%) in group 1, 5 (25%) in group 2 and 1 (9%) in group 3. The stillbirth rates in the three groups were 3.8%, 15% and 36%, respectively.

Maternal outcome: There were no maternal deaths or cases of valve thrombosis. There were 6 (9.7%) near misses. Four mothers developed cardiac failure and were treated medically. There were 2 cases of bleeding problems post-caesarean section requiring massive blood transfusions and re-look laparotomies.

CONCLUSION: Warfarin in pregnancy is associated with a low risk of valve thrombosis or maternal death. Fetal outcome is dependent on the maternal warfarin dose. However, if pregnancy continues past 25 weeks the risk of stillbirth is significantly lower if the warfarin dose is 5 mg compared with higher doses.

VESICOVAGINAL FISTULAS DUE TO INTRAVAGINAL FOREIGN BODIES

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Vesicovaginal fistula (VVF) is uncommon in the developed world, and the majority are caused by inadvertent surgical injuries. In developing countries, neglected labour contributes significantly to VVF. Less common causes include pelvic malignancies, radiotherapy, pelvic abscesses and infections including tuberculosis. A series of 6 cases of VVF arising from foreign bodies (5 from aerosol deodorant caps and one from a bottle) among a total of 146 urogenital fistulas attending the urogynaecology unit over a 10-year period will be discussed.

Demographic data: Average age 27.5 years (range 16 - 75), 4 patients parity 0 (age 16, 20, 22 and 43) and 2 parity 3 (age 40 and 75), 5 patients were black and 1 Indian. Four patients (age 16, 20, 22, 43) admitted to using the deodorant can for masturbation and sexual gratification. All were in heterosexual relationships except the patient aged 43 who was mentally challenged and did not have a sexual partner. The 40-year-old was using the cap as a contraceptive device. The patient aged 75 years had a bottle impacted high in the vagina with erosion into the bladder and denied any history of foreign body insertion. All 5 patients with the aerosol caps were aware of the cap being retained in the vagina but did not seek medical assistance because of embarrassment. The average duration from insertion to presentation for medical help in the 5 patients was 13 months (2 - 48).

Presenting symptoms were discharge, vaginal discomfort and pain in all patients. Two patients, aged 75 and 22, presented with urinary incontinence and 1 with abnormal vaginal bleeding.

All patients required removal of the foreign bodies in theatre under general anaesthetic, and this was technically difficult. Upper tract imaging (intravenous pyelograms) were normal in all patients. Surgery was delayed for a period of 4 - 6 months in all cases to allow the necrotic tissue to slough off and the inflammation to settle. In 3 patients (age 20, 22, 43) the fistula site was at the bladder neck and trigone and all 3 were operated vaginally with a Martius labial fat pad interposition graft. Continence was achieved in 2 and one ended up with urethral incontinence. A Bard biological retropubic tape was inserted which improved incontinence episodes. Two patients (aged 16 and 40) were operated on via the abdominal route and continence was achieved in both. The patient aged 16 was operated on previously via the vaginal route at a regional hospital and the fistula repair was unsuccessful. In this case, a right ureteric implant was also performed because of the close proximity of the ureteric orifice to the fistula site. In both cases, omentum was interposed between the bladder and vagina during the repair. The 75-year-old patient was counselled for a urinary diversion procedure because of the extensive nature of the fistula but refused surgery.

A RARE OCCURRENCE – A LITHOPEDION DIAGNOSED AND MANAGED AT DR GEORGE MUKHARI HOSPITAL: A CASE REPORT

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Rarely does a fetus of advanced gestational age die intra-abdominally and remain *in situ* for a long time. Calcification of retained fetal parts and/or membranes, which has also been called 'stone' or 'mummified fetus', has been reported in the medical literature since the 16th century. When the fetus alone becomes calcified (mummified) it is known as a lithopedion. The incidence of lithopedion formation ranges from approximately 1 in 1 000 to 1 in 700 000 of all extra-uterine pregnancies. Patients' ages are known to range from 23 to 100 years, while the duration of the lithopedion retention has been reported to range from 4 to 60 years.

The natural history of lithopedion formation consists of an early gestation, followed by symptoms of abdominal catastrophy. The pregnancy may progress after the symptoms associated with the tubal abortion have subsided. In time, abdominal enlargement and fetal movement may be experienced. Symptoms of labour that may normally occur near term usually stop within 48 hours without delivery. Dehydration and calcification of the dead fetus ensue. Variations in the late presentation of symptoms depend upon which organs are affected by pressure or erosion from the mummified fetus. Confirmation of lithopedion formation is usually by radiography and in the present day of advanced technology, by CT scan. Management of this long-standing retained abdominal pregnancy is surgical. Surgery is generally simple and not associated with excessive blood loss or death.

CASE REPORT: The patient was seen at Dr George Mukhari Hospital (Pretoria). She was a 56-year-old woman, para 3, gravida 4, who first presented in 1999 (when she was 45 years old) and refused exploratory laparotomy for lower abdominal pain/abdominal mass. She returned early in 2010 with the same complaints and on examination her medical history revealed a 20-year history of amenorrhoea. She was again counselled for laparotomy and after consent was given, a surgical procedure resulted in the removal of a calcified, fully formed fetus.

CONCLUSION: This is a very rare condition, which many practising professionals may never see in a lifetime.

STUDENT INTERNS' PERCEPTION OF THEIR PREPAREDNESS FOR ASSESSMENT IN OBSTETRICS AND GYNAECOLOGY

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BACKGROUND: Effective self-assessment of knowledge and ability is vitally important to enable undergraduate students to concentrate their study efforts in areas of identified knowledge deficiencies. Little is known about undergraduate self-assessment in obstetrics and gynaecology (O&G). We performed a study to assess the relationship between student interns' perceived preparedness for each station in the O&G OSCE examination, their actual performance in these stations, and their approach to optimal preparation for individual stations.

METHODS: We used anonymous questionnaires with closed-ended questions using 9-point Likert scales as well

as multiple-choice questions to determine which activities student interns (SIs) thought prepared them best for each of the stations (24-hour calls, clinics, lectures, self study, ward rounds). Participation was anonymous, but SIs were asked to indicate in which clinical group they were.

RESULTS: We had sufficient data for analysis from 78 of the 80 groups who rotated through O&G during the year. The mean percentage of the SIs in the upper quartile (UQ) was significantly higher than in the lower quartile (LQ) (71.1±2.7% v. 54.8±2.7%, $p<0.01$), but the expected performance as predicted by SIs themselves did not differ (73.3±6.7% v. 70.5±5.6%). SIs in the UQ did significantly better in all stations apart from the theory station (57.8±1.1% v. 50.4±10%) and the video station (71.8±1.5% v. 65.3±1.4%). SIs in the LQ did not foresee that they would do worse than those in the UQ in any of the stations. SIs in the UQ were significantly more likely to use clinical opportunities to improve their knowledge than those in the LQ, who depended on lectures and self-study (OR 1.37; 95% CL 1.02 - 1.84).

CONCLUSION: SIs in O&G who perform more poorly in the OSCE examination are more likely to overestimate their abilities than those who perform well. There may be differences in approach to obtaining knowledge between students in the UQ and LQ. Feedback has an important role to play. More research is required into the ways in which different SIs prepare for examinations.