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Abbreviations used in this issue:

- CS = Caesarean section
- SPB = Spontaneous preterm birth
- NST = Nonstress test
- CTG = Cardiotocogram
- IA = Intermittent auscultation
- FHR = Fetal heart rate
- AIP = Abnormal insertion of the placenta
- IUGR = Intra-uterine growth retardation

Use of pessary in prevention of premature birth in singleton and twin pregnancies

Presenter: Cabero L

Summary: This prospective, open-label randomised trial set out to determine whether the use of cervical pessary in women with short cervix previously identified during routine midgestational transvaginal scanning reduced the early preterm delivery rate. Conducted between 2007 and 2010 at 5 hospitals in Spain, the Pesario Cervical para Evitar Prematuridad (PECEP) involved 385 pregnant women (aged 18-43 years) who were undergoing routine second trimester ultrasonography at 18-22 weeks of gestation with cervical length of 25mm or less. In the final analysis there were 2 groups of 190 women randomised to the pessary and expectant management group respectively. Spontaneous delivery occurred significantly less frequently in the pessary group compared with the expectant management group: 12 (6%) versus 51 (27%); the odds ratio was 0.018 with a 95% confidence interval of 0.08 to 0.37 (p=0.001). No serious adverse events occurred in the pessary group. The findings demonstrate the safety and efficacy of a cervical pessary for the prevention of preterm birth in a population of appropriately selected at-risk women with a short cervix identified at mid-trimester scan. The same protocol was followed where twins were identified and the data showed that the use of cervical pessary in high-risk pregnant women (with short cervical length and twins) reduced the rate of spontaneous preterm birth from 25% to 16%. Out of a total of 2,287 pregnant women whose cervical length was measured, 154 were detected with a cervix identified at mid-trimester scan. The same protocol was followed where twins were identified and assigned to receive a cervical pessary or expectant management (1:1 ratio). SPB was significantly less frequent in the pessary group than in the expectant management group (16.2% v 39.4%; RR: 0.41; 95% confidence interval: 0.22 to 0.76). Pessary use was associated with pessary group birth weight <2500g (p=0.01). A significant reduction in the rate of birth weight <2500g was observed in the pessary group (p=0.01). There were no significant differences observed in composite neonatal mortality between groups and no serious side effects associated with the use of cervical pessary. Therefore, it was concluded that cervical pessary use was associated with a significant reduction in SPB.

Comment: Preterm (less than 37 completed weeks) birth is one of the commonest causes of perinatal morbidity and mortality. Over the past 50 years many interventional techniques have been introduced to reduce the risks of preterm deliveries. The use of cervical pessary is one of the techniques employed in many parts of the world to minimise the risk of preterm labour. The methodology followed in the aforementioned study is easy to use. The cervix is assessed during the course of morphology ultrasound scan. If the cervix is <25mm a cervical pessary is offered to mothers carrying singleton or twin pregnancy. The results are encouraging and it is worth considering as a protocol in “high risk” pregnancy with short cervix.
Imaging of pelvic floor trauma: technique and clinical utility
Presenter: Dietz HP
Summary: This talk was focused on the assessment of levator and anal sphincter trauma by 4D translabial pelvic floor ultrasound. This method opens up multiple opportunities for clinical audit and practice improvement activities in clinical obstetrics. Maternal trauma should therefore become a key performance indicator of obstetrics services. Pelvic floor ultrasound opens the way for clinical trials that are aimed at primary and secondary prevention of pelvic organ prolapse, and urinary and faecal incontinence by providing intermediate outcome measures that allow study designs with realistic timelines and increased power. Pelvic Floor Imaging is also useful in assessing pelvic floor prolapse, modern sling and mesh implants, and in those patients with obstructed defecation, making it a valuable tool for gynaecologists, urogynaecologists, urologists, physiotherapists and colorectal surgeons.

Comment: Multiparity is amongst the main factors in the causation of pelvis organ prolapse. Pelvic floor trauma in labour is recognised to contribute to avulsion of the puborectalis muscle off its insertion on the os pubis along with trauma to the anal sphincter. These traumata could well lead to urinary and faecal incontinence or even obstructed defecation. Diagnosing the pelvic floor trauma related to childbirth may be done by Magnetic Resonance 3D/4D ultrasound scanning (4D USS); as the latter equipment is readily available in many delivery suites and postnatal wards worldwide. Pelvic floor ultrasound is a reliable and accurate method that helps all clinicians involved in management of labour to ascertain and maintain a high level of quality assurance and obstetric practice improvement.

Abstract 008

Shoulder dystocia – mechanisms of injury and management
Presenter: Gurewitsch E
Summary: There is considerable evidence to recommend interventions that would improve clinical practice in managing shoulder dystocia, some of which are controversial. Permanent brachial plexus injury is nearly universally associated with shoulder dystocia and injury is causally related to mechanical stresses induced during shoulder dystocia delivery. Management algorithms can be optimised to reduce the incidence of mechanical birth injury from shoulder dystocia. This presentation aimed to help participants to understand the biomechanical relationship between the shoulder dystocia phenomenon and neonatal brachial plexus injury. In addition, it demonstrated how shoulder dystocia manoeuvres reduce clinician-applied delivery force thereby reducing risk of neonatal brachial plexus injury. It also set out to teach how to critically evaluate shoulder dystocia delivery techniques (by direct observation and review of medical literature) and relate them to the likelihood of neonatal brachial plexus injury.

Comment: Shoulder dystocia is an obstetric emergency that every clinician in the delivery suite must have the knowledge and skills with which to promptly, effectively and satisfactorily deal with the situation to prevent perinatal injuries and death. The “margin of error” is very narrow in the circumstance. Traditionally, the combination of generous episiotomy while the patient is in exaggerated lithotomy position is recommended. However, undue traction forces applied to the foetal head and neck may result in permanent brachial plexus of the newborn. Finesse must take priority over force. Rotational manipulation of the foetal head within the maternal birth canal is stressed in light of international medical literature about the topic and management algorithms can be optimised and clearly displayed in every delivery suite.

Abstract 010

Intrapartum Complications
Presenter: Farine D
Summary: This presentation covered a number of topics involving some of the complications and challenges that are more likely to face obese pregnant women and therefore their obstetricians and midwifery teams. Macrosomia and shoulder dystocia are both increased in women with elevated BMI, and there are challenges to foetal and uterine contraction monitoring. Caesarean birth carries additional complications in the obese patient, and there is a reduced success of vaginal birth after Caesarean section. In obese parturients, obstetric anaesthesia presents challenges such as difficult or failed intubation, epidural placement failure, and delays in anaesthesia leading to delayed CS. Finally, there is an increased risk of thromboprophylaxis both antepartum and postpartum in the obese pregnant woman and consideration should be given to thromboprophylaxis at CS.

Comment: Important tips for solutions of some of the common day-to-day clinical issues facing obstetricians and midwifery teams while caring for obese /morbidly obese women in labour.

Foetal monitoring - external monitoring of the foetal heart could prove unsatisfactory in obese women in labour. Intrafoetal heart monitoring may be used in many cases.

Uterine contraction monitoring - external tocometry/manual palpation are used in many delivery suites. However, electrophysiology may prove more clinically useful than tocodynamometry and intra-uterine catheters to more precisely monitor the uterine contractions in this population.

Caesarean birth - more than 75% of obese/morbidly obese women will require more than a single attempt to place an epidural catheter. Surgically, this group of women often lose more than 1000ml of blood during caesarean section, experience delayed healing of abdominal wound and often a vertical skin incision with complications of wound infection, endometritis, delayed healing and subsequent incisional hernia.

Abstract 011

Should an admission NST/CTG be performed on all patients?
Presenter: Farine D
Summary: This presentation looked at the recommendations for monitoring the foetal heart rate and discussed the two methods of assessing foetal wellbeing. One of these methods utilises intermittent auscultation (IA) and the other is by continuous monitoring of the foetal heart rate (FHR). The Canadian, American, and British guidelines allow both modalities in low-risk patients with a preference to IA. However, 90% of labouring patients in Canada, US and many other countries are monitored using both FHR and IA which makes the admission test relevant to only about 10-20% of patients where the intended mode of monitoring is auscultation. But is there a need for electronic monitoring for the 20-30 minutes before the intended mode of auscultation is applied? If we accept the clear guidelines of the 3 eminent societies then the answer is that it is not indicated. The presenter suggested however that there is a need to see what the basis of these recommendations is and what implications there are for adopting them. There is a discrepancy between guidelines that suggest auscultation in low-risk patients and the practice that invariably prefers electronic foetal monitoring (EFM). One reason for this is force of habit, another is the practicalities of monitoring. It is difficult to comply with the IA guidelines throughout labour and medico-legal papers show that there are significant time gaps in which the foetus is not monitored. Evidence tends to suggest that EFM is superior to IA and this is championed by Gurewitsch et al. Their randomised controlled trial looked at outcomes in the whole US population and made the point through critical analysis of previous research favouring IA.

Comment: Pinard introduced the first foetal stethoscope about 130 years ago and, since then, foetal monitoring in labour has been widely accepted, either by IA or, more recently, by continuous monitoring of the foetal heart rate. Both methods have different implications in terms of technical, financial, and human resources in obstetric practice. There is no evidence that routine admission test improves the outcome. Firstly, a poor tracing could have been seen for a while following an event that happened earlier on during labour or the antenatal period and intervention is unlikely to change the outcome. Secondly, IA is likely to pick up foetal bradycardia or significant decelerations. Thirdly, the probability of severe foetal acute event in the absence of maternal symptoms such as uterine rupture or placental abruption is very slim. There is now compelling evidence that electronic foetal monitoring is indeed superior to IA in monitoring the foetus.

Abstract 013
How and where to deliver a preterm foetus?

Presenter: Hubinot C

Summary: The mode of delivery for the preterm foetus has been a controversial subject for decades as this presenter outlined, and the incidence of prematurity remains high in most countries despite the improvements in antenatal care and management. A tertiary maternity centre offers all neonatal facilities and should be decided upon prior to delivery with an in-uterine transfer and corticosteroids administration. Prematurity alone is not a valid indication for Caesarean section (CS) unless there are obstetrical indications. Where there is intrauterine growth restriction, breech presentation, and in twins with a non-vortex presentation, CS should be recommended. Vaginal delivery is the gold standard mode of delivery for singleton and twin vertex preterm foetuses. Although CS delivery for preivable infants is not recommended it is an option that could be discussed. CS delivery does not prevent the occurrence of neurological sequelae except in breech, growth restriction and chorioamnionitis, but maternal short and long term risks are increased in case of CS. Instrumental delivery in preterm infants is not recommended however if necessary, low forceps is preferred over vacuum extraction below 34 weeks.

Abnormalities of placentation (accreta, percreta, increta) requiring Caesarean delivery

Presenter: Hubinot C

Summary: With the increasing reliance on Caesarean deliveries, abnormal insertion of the placenta (AIP) has dramatically risen in incidence over the last 20 years. Antenatal diagnosis and perinatal management is an essential requirement for the reduction in the associated high maternal morbidity. With experience of severe forms of AIP, this presentation reviewed the risk factors and diagnostic criteria using ultrasound and MRI, it discussed perinatal management comparing conservative or combined Caesarean-hysterectomy approaches. In light of increasing incidence of abnormal placental insertion, antenatal diagnosis should be systematically offered to patients with placenta praevia and previous history of uterine scarring. For patients asking for fertility preservation, conservative management could be an option. However, it should be carried out using strict follow-up protocols in tertiary centres with intensive care and embolization facilities.

Comment: Abnormal insertion of the placenta has shown a dramatic increase over the past two decades due to the rise in Caesarean deliveries. Magnetic resonance imaging and ultrasound scanning are used to diagnose the condition antenatally and plan the management so that the considerable maternal morbidity may be minimised. Box: Before offering Caesarean delivery for women with placenta praevia and previous Caesarean section, this is the cohort of patients at “high risk” of developing AIP. The line of management is usually delivery by Caesarean section followed by a hysterectomy with possible excision of a wedge of urinary bladder if the latter organ was invaded by AIP. Conservative management should only be reserved for women who want to achieve more pregnancies and must be managed at tertiary referral centres with intensive care and embolization facilities.

Neuro-underdevelopment in infants with Intrauterine Growth Retardation and Antenatal Taurine Intervention

Presenter: Prof Jing Liu

Summary: This presentation covers a project that is supported by the National Natural Science Foundation of China. It discussed intra-uterine growth retardation (IUGR) and intervention at the antenatal stage of development. IUGR refers to the failure of the foetus to achieve its designated growth potential due to anatomical or functional disorders, or diseases in the foetal-placental-maternal unit. Foetuses and neonates can be affected by metabolic and haematological disturbances, disrupted thermo-regulation, respiratory distress syndrome, etc. IUGR is also associated with some adult diseases such as type 2 diabetes, obesity, hypertension, dyslipidaemia, insulin resistance, premature adrenarche, cardiovascular disease and many others. Recent studies have shown that IUGR severely impacts on foetal, short- and long-term brain development and neurobehaviour, especially in terms of neuro-psychology. In addition, IUGR adversely effects neurodevelopment such as brain structural changes. It is one of the most important risk factors for cerebral palsy in children, with a five- to seven-fold increased risk of developing this condition seen among term SGA children compared with gestational age-matched infants with lower birth rates. It is therefore important for clinicians to understand the adverse effects of IUGR on foetal brain development and to be aware of the available interventional strategies. Due to the fact that brain damage caused by IUGR originates from the foetal period it is difficult to improve the nervous system’s prognosis postnatally. For this reason, taking effective preventative measures prenatally to protect IUGR foetal brains from damage is clearly the answer. Taurine is among the most important amino acids in infants. It is essential for the normal growth and development of the central nervous system. Taurine maintains stable membranes, provides antioxidant activity, regulates intracellular and extracellular osmotic pressure, maintains the intracellular calcium balance, and it plays an important role in inhibiting cell apoptosis caused by neurotransmitters and other agents. Studies have shown antenatal taurine resulted in increased brain weight in IUGR foetuses, improved brain development, reduced cell apoptosis, the promotion of nerve cell proliferation, increasing giall cell line-derived neutrophil and perfect neuronal function at an early stage.

Comment: Intrauterine growth retardation (IUGR) is associated with multifactorial metabolic and haematological disturbances of the neonates as well as five- to seven-fold increases in the incidence of cerebral palsy (CP). In adult life there is also a higher risk of type 2 diabetes, obesity, dyslipidaemia, insulin resistance, premature adrenarche, polycystic ovarian syndrome and cardiovascular disease. This study supports the antenatal administration of taurine, an important essential amino acid, to maintain stable membranes, provide antioxidant activity, regulate intracellular and extracellular osmotic pressure, and to maintain the intracellular calcium balance.

The study shows that taurine resulted in increasing brain weight in IUGR foetuses, improving brain ultrastructure, reducing nerve cell apoptosis, and perfecting neural function. More research is eagerly anticipated on the antenatal administration of taurine in IUGR pregnancies.

Abstract 015

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We are working to address unmet needs in reproductive health, focusing on the entire patient journey, from conception to birth.
Active Management of Labour

Presenter: Robson MS

Summary: Active Management of Labour, or AML, is the term given by the British Medical Journal in 1973 to describe an approach to labour which was initiated in 1963 at The National Maternity Hospital, Dublin, Ireland. This presentation by Professor Robson from that same hospital in Dublin talks about the philosophy behind AML and its evolution. One of the most commonly used phrases in labour management, AML, is at best, often misunderstood and at worst it is not appreciated and misrepresented. The philosophy behind it has always been the prevention of prolonged labour, in particular the prevention of the physical and psychological morbidity that often follows. Prolonged labour was first defined as 36 hours in 1963. By 1968 it was reduced to 24 hours and finally to 12 hours in 1972. Efficient uterine action and foetal/maternal well-being are the key requirements to achieve the principles of AML. Specific attention and importance is given to diagnosis of labour, birth, and fetal and maternal well-being. In particular, personal attention is given to each woman during her labour. With regards to antenatal education, this is explained simply as putting the woman at the centre of her care. The organisation of the labour ward is totally midwifery-based, but benefits from a close working relationship with senior obstetric colleagues. The main focus of AML however is always the care in spontaneous labour of the single cephalic, term pregnancy, amongst nulliparous women, with the rise in Caesarean section rates, including at the NMH, there is the philosophy that differences in CS rates could be accounted for by a different approach to the management of spontaneous labour in nulliparous women. Hence AML has been presented as an alternative to CS for dystocia. Since then, AML has been associated with being the ‘answer’ to rising CS rates. Although some have successfully reduced their CS rates by using its principles it should be emphasised that it was never the purpose of AML to reduce CS rates. AML continues to evolve as informed maternal choice becomes more influential in intrapartum care. However, the prevention of prolonged labour and its associated complications will still be as important in the future to women as it was in the past. It is up to individual women to decide what is ‘good’ and what is ‘bad’, as far as advantages and disadvantages to AML are concerned, but if they would prefer a shorter labour with one to one care and a high chance of a normal delivery then they will be opting for Active Management of Labour.

Comment: Active management of labour is a well-recognised term. The philosophy of AML is to prevent prolonged labour that can be associated with many side effects from the maternal and foetal perspectives. Obstetric research generated from major teaching hospitals in Dublin, Ireland, commands special attention as the turnover of patients in their labour wards is amongst the largest in the world. Labour is an intensive-care situation. Where AML is practised in the aforementioned labour wards the model of care is totally midwifery-based, but benefits from a close working relationship with senior obstetrician colleagues. This model is probably different from that adopted in many obstetric units but is conducive of early diagnosis and management of inadequate progress of labour.

Abstract 022

Strategies to reduce Caesarean deliveries

Presenter: Robson MS

Summary: This talk about Caesarean section rates touched on the need for a standard classification system to be adopted so that a true assessment of care can take place. The presenter stated that Caesarean section rates should no longer be thought of as too high or too low, but whether or not they are appropriate after taking into consideration all antenatal and intrapartum outcomes. In order to achieve this, statutory and standardised routine collection of information would need to be implemented and this is a challenge to most delivery units. Maternal satisfaction has become one of the most significant outcome factors after childbirth and this must be taken into consideration when implementing any changes in labour and delivery. The subject of Caesarean section rates is an issue of enormous importance to many women, midwives, obstetricians, neonatologists, and society as a whole. Reduction of the primary Caesarean section rate in nulliparous women is the safest and most appropriate way to reduce high Caesarean section rates and dystocia is the most common indication for C-section in this group of women. A standard classification for indications for Caesarean sections in labour would assist the identification of those areas of practice which require changes. Furthermore, a Multi-Disciplinary Quality Assurance Programme needs to be supported within each delivery unit. Whilst women will always choose the type of delivery that seems safest for them and their baby, professionals need to monitor the quality of their practice continually in a standardised way, ensuring that women can make the right choice.

Comment: Caesarean section is usually, but not always, more traumatic than vaginal delivery. Reducing Caesarean section rate has been an important topic of discussions involving obstetricians, midwives, General Practitioners within obstetric practice, neonatologists, anaesthetists with special interest in obstetrics, consumer group representatives and occasionally social workers and medical administrators. A Multi-Disciplinary Quality Assurance Programme needs to be supported in every delivery unit to continuously monitor the safety of obstetric practice in a standardised way. A Caesarean section rate can, and should, only be reduced if it can be justified and safely implemented. Every case should be considered on its own merits. The dictum to “Look after your patient and statistics can look after themselves” is probably correct!

Abstract 023

Independent commentary by Mark Erian

Associate Prof Mark Erian is a Senior Consultant Obstetrician and Gynaecologist based in Brisbane, Australia. He has been in specialist practice for more than 25 years. He has a wide range of experiences in obstetrics and gynaecology and its related surgical specialities through a variety of appointments in Ireland, the UK and Australia.

A/Prof Mark Erian has many years of experience in a full range of intensive labour ward management. He is well versed in managing high-risk pregnancy in labour and management both spontaneous and induced labour.

A/Prof Mark Erian performs all the major elective gynaecological surgical procedures, including abdominal and vaginal hysterectomy, myomectomy and vaginal repairs. He has extensive experiences in grave emergency gynaecological surgery including laparoscopy for ruptured ectopic pregnancy and other adnexal and appendix conditions. Because of his knowledge in this specialist field, A/Prof Mark Erian is an accredited trainee in advanced endoscopic gynaecological surgery. He regularly lectures in the US in advanced hysteroscopic surgery and has published numerous papers. A/Prof Erian has been actively involved in the teaching of trainees, fellows, undergraduate and postgraduate trainees in advanced laparoscopic procedures both in Australia and the US.

Abstract 024

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