P81 Changing to prophylactic phenylephrine for elective caesarean section: one institution’s experience

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Introduction: Our institution is a tertiary referral obstetric unit with approximately 5,200 deliveries per year of which 580 are elective caesarean deliveries, typically performed under spinal anaesthesia. Spinal anaesthesia for caesarean section is associated with a fall in systemic vascular resistance with an accompanying drop in mean arterial pressure. This can lead to symptoms such as nausea, vomiting and light-headedness and may result in placental hypoperfusion.1 The hypotension can be opposed by the administration of vasopressors, including α-adrenoceptors such as phenylephrine. In our institution phenylephrine has traditionally been given as intravenous boluses ‘reactively’, i.e. in response to a measured fall in blood pressure or when maternal symptoms suggest hypotension. We have not previously compared this ‘reactive’ management with using prophylactic vasopressor.

Methods: We conducted an initial audit (Jan-Feb 2010) of blood pressure control during 30 consecutive elective caesarean sections under spinal anaesthesia using the established ‘reactive’ blood pressure management. Episodes of sustained hypotension (i.e. systolic blood pressure < 100 mmHg for over 2 minutes) and symptoms suggestive of hypotension were documented prospectively.

We subsequently changed to using a phenylephrine 100 mcg/ml infusion, delivered prophylactically via an infusion pump and commenced at a standard rate once the spinal anaesthetic was administered. Anaesthetic management was otherwise unchanged. Once the new regime was established we carried out a re-audit (Sept-Oct 2010) during 30 consecutive elective caesarean deliveries. Results were compared using the chi-squared test.

Results: The primary results of the initial audit and the re-audit, after the change to prophylactic phenylephrine infusions, are given in table 1.

<table>
<thead>
<tr>
<th></th>
<th>Reactive phenylephrine</th>
<th>Prophylactic phenylephrine</th>
<th>p value (x2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustained hypotension</td>
<td>83%</td>
<td>43%</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Symptomatic hypotension</td>
<td>52%</td>
<td>17%</td>
<td>p &lt; 0.01</td>
</tr>
</tbody>
</table>

Discussion: The use of prophylactic infusions led to a reduction in sustained hypotension by almost half, and symptomatic hypotension was reduced three-fold. Although the amount of vasopressor used increased, in keeping with previous studies,2 changing to prophylactic phenylephrine has not led to any adverse events at our institution to date.

References

P82 Survey of midwives’ knowledge of local anaesthetics and epidural analgesia in south-east England

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Introduction: The use of local anaesthetics (LA) and epidural analgesia are an integral part of routine work in any obstetric unit. Midwives are responsible for monitoring women with epidural analgesia and for using LA to repair perineal tears. Knowledge of LA and their complications are essential for safe practice as part of our risk management strategy and arguably, this knowledge should be standardised across the country.1 The aim of this survey was to assess midwives’ knowledge of LA, epidural analgesia and their complications and evaluate whether this was comparable across three busy hospitals in South-East England.

Methods: Identical surveys were distributed to 90 midwives across three large obstetric units in South-East England. The questionnaire comprised of 11 questions relating to epidural analgesia and LA complications which we considered essential knowledge. These included type of LA used for epidural analgesia, maximum LA dose, understanding of LA complications and toxicity.

Results: There was a 100% response rate. We compared 90 midwives across hospitals A, B and C. Hospitals A and B were district general hospitals with a delivery rate of approximately 5000/yr and 5500/yr respectively. Hospital C was a teaching hospital with a delivery rate of approximately 7000/yr. Eighty percent of midwives at hospital A, 47% (B), and 93% (C), believed that 0.25% bupivacaine was the standard solution for epidural analgesia. Twenty percent (A) and 33% (B), believed that there was no maximum dose for lignocaine. The figure at the teaching hospital was 7%. Eighty percent (A), 73% (B) and 46% (C), had not heard of the term local anaesthetic toxicity. The midwives at unit B and C were able to identify complications of epidurals significantly better than at unit A.

Conclusion: The results of this survey suggest that there is a need for improved midwife education with regard to LA use and potential complications. There are also obvious inconsistencies in knowledge between centres suggesting the need for a more co-ordinated approach to training midwives.

We propose to develop a booklet targeting essential midwife knowledge and to implement a regional midwife teaching day in order to standardise knowledge across the region. A further audit is planned after implementation of this teaching programme.

Reference
P83 Improving epidural safety: a closed-loop audit of equipment provision in the labour ward

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Background: Epidural analgesia is a common form of pain relief in labour. Epidural abscess and meningitis are rare but potentially catastrophic. Sterile precautions are mandatory and include hat, mask, sterile gloves and gown. Chlorhexidine is the antiseptic solution of choice for regional anaesthesia. The Association of Anaesthetists recommends that oxygen should always be available where epidurals are performed.

Aim and standard: To audit the availability of the equipment required for sterile and safe insertion of epidurals in our labour ward. We chose a standard of 100% availability.

Audit cycle: The audit was undertaken for one calendar month at the beginning (February) and end (December) of 2010. Following the first audit, responsibility for the provision of equipment was assigned to specific staff.

Method: A tick-box questionnaire was completed for every epidural by the anaesthetist at the time of insertion. The cap rate was calculated using departmental follow-up cards. We looked at seven factors: the availability of surgical scrub, no-touch elbow dispensers, correctly-sized gloves, chlorhexidine skin prep and the presence of oxygen flow meters, tubing and reservoir masks in the room. The results were analysed using the Chi² test (1 DOF).

Results: We obtained data on 105 epidurals (75% capture) in the first audit and 156 epidurals (84% capture) in the second audit. We demonstrated statistically significant improvements (p < 0.01) in glove provision (73% to 92%), chlorhexidine availability (44% to 94%), the presence of tubing (69% to 86%) and reservoir masks (10% to 40%). However, there was a statistically significant decrease (p < 0.01) in the use of no-touch elbow dispensers (35% to 17.9%). Participants commented that elbow dispensers were present but the mechanism was broken.

Discussion: Maximal sterile precautions and oxygen availability are essential for the safe practice of central neuraxial blockade. Through our audit and intervention, we have shown a statistically significant improvement in four factors that contribute to the safety of our patients in labour. However, we have yet to achieve the 100% standard. Our results will be fed back locally through the NHS Quality Improvement Scotland programme which will enable us to continue to effect more changes which, when re-audited, should take us closer to the goal of 100% provision of equipment in labour ward.

References
3. AAGBI. Good practice in the management of continuous epidural analgesia in the hospital setting. AAGBI, 2004, Nov
5. AAGBI. Management of Severe Local Anaesthetic Toxicity. AAGBI Safety Guideline 2010

P84 Case series of hyperkalaemia in two pre-eclamptic primigravid females with liver haematoma and rupture

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Pre-eclampsia is a multisystem disorder that affects up to 10% of all pregnancies. It is characterised by both hypertension (140/90mmHg) and proteinuria (>300mg in 24hours) after 20 weeks gestation or within 48 hours of delivery[1]. Hepatic haematoma and rupture is a rare but life threatening complication of pre-eclampsia with mortality rates of up to 50% [2]. Diagnosis of this potentially catastrophic complication can be elusive and often delayed due to its non-specific presentation. Hyperkalaemia has not previously been reported in this context.

Case 1-A 40 year old primigravid at 36 weeks gestation presented complaining of epigastric pain. Caesarean section was performed for foetal distress, which was uncomplicated with blood loss of 450ml. Postoperatively she became hypotensive and was noted to have a haemoglobin(Hb) of 6.9g/dl and platelets of 58x10⁹-⁹⁻. A diagnosis of HELLP syndrome was made and she was transfused two units of packed red cells. A potassium(?) result during the first unit was 7.4mmol/L. Renal function was normal. An abdominal CT scan subsequently showed three separate bleeding foci in her liver parenchyma and a subcapsular haematoma which had ruptured. Interventional radiology was considered but she stabilised without intervention.

Case 2-A 35 year old primigravid at 38 weeks gestation presented with epigastric pain. Caesarean section was performed for foetal distress and was uncomplicated with blood loss of 230ml. Postoperative bleedings showed a Hb of 8.5g/dl and platelets of 52x10⁹/. The patient was hyperkalaemic with a K+ of 6.8mmol/l. Persistent epigastric pain lead to abdominal ultrasound demonstrating a 12x4cm subcapsular haematoma. The patient was referred to the regional liver unit but stabilised without intervention.

Discussion-The development of hyperkalaemia in these cases is very interesting as it almost certainly developed after the hepatic haematoma. Sampling error was excluded. Hyperkalaemia was presumably a result of hepatocyte damage and subsequent release on intracellular K+. This phenomenon has been reported following radiofrequency ablation of hepatocellular carcinoma[3] and is being investigated as a marker of tissue hypoxia in haemorrhagic shock[4]. In both cases hyperkalaemia preceded the imaging diagnosis of hepatic haematoma. In the context of pre-eclampsia, hyperkalaemia could alert to hepatocyte damage and lead to an earlier diagnosis of hepatic haematoma and subsequently reduce maternal and perinatal mortality.

References
P85 An Interesting Case of Dyslipidemia for Caesarean section

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Introduction: Dyslipidemia’s are a group of lipid metabolism disorders characterized by hypercholesterolemia or hypertriglyceridemia or both. In vast majority of the patients they are secondary to diet, sex, obesity, medications or other congenital disorders affecting lipoprotein metabolism. Dyslipidemia’s can cause significant anaesthetic problems. We present an interesting case of a patient with Type IV hyperlipoproteinemia (familial lipoproteinemia) who presented for an emergency caesarean section.

Case report: A 29-year-old primigravida, 37+4 weeks pregnant woman presented with symptoms of bleeding per vaginum. She was in labour and presented with pallor, shock and tachycardia. Her abdomen was not tender and at initial point of care hemoglobin was 7.4g/dl. Ultrasound showed placenta praevia (overlying os). She underwent a category 1 caesarean section under general anaesthesia. The baby was delivered with cord gases within normal range. Intraoperative period was complicated with atomic uterus and invasive lines were inserted for cardiovascular instability. Arterial canula got blocked twice because of thick lipemic blood. Blood being turbid interfered with electrolyte estimation. ABG revealed severe metabolic acidosis. Hence decision was taken to keep her ventilated postoperatively in an ICU setup. Working diagnosis of Familial Hyperlipemia was made after specialist advice was sought from clinical biochemists and lipidologists from tertiary institution. Patient was eventually extubated on the following day and was discharged from hospital on the 14th day under strict dietic advice.

Discussion: Patients with liprotein disorders can exhibit a variety of different clinical symptoms and cause difficulties in their management. As these disorders are rarer, it is not easy to diagnose it in a life threatening emergency scenario. Lactescent plasma with a Triacylglycerol levels ≥ 60 can interfere with the electrolytes estimation although FBC is not affected. High levels of triglycerides are associated with pancreatitis. Propofol should not be used as a sedative as it can cause hypertriglyceridemia. Delayed recovery has been reported with non depolarising muscle relaxants in hypertriglyceridemia. It is not known whether high lipid levels in the blood will prevent local anaesthetic toxicity. Multispecialty level of care and expertise is required in successful outcome of these patients.

References

P86 Case report: Benign intracranial hypertension as a cause of post epidural headache

C Joannides, A J Brewer, C Elton
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Introduction: Benign intracranial hypertension (BIH) is characterised by increased intracranial pressure in the absence of intracranial abnormality. We describe a case of a multiparous woman with a history of chronic headaches, who after receiving an epidural developed symptoms consistent with a post-dural puncture headache and was treated with a blood patch. The patient was later diagnosed with BIH.

Case History: A 24-year-old multiparous woman, with a BMI of 36, requested an epidural during labour. The epidural was sited first time uneventfully. A healthy baby was born by forceps delivery via an epidural top-up. At 12 hours post-partum, the patient complained of a postural occipital headache. Although the patient described having had a chronic postural headache, worse when supine, which worsened during her pregnancy. This headache was noted to be significantly worse since having had the epidural. A probable post-dural puncture headache was diagnosed and a blood patch was performed. After initially providing relief, the headache returned and a further blood patch was offered but declined. Eighteen months later, during her third pregnancy, the patient was admitted to hospital with worsening of her chronic postural headache and papilloedema. The patient had a normal MRI and a lumbar puncture, which illustrated raised cerebrospinal fluid pressure (CSF) with normal composition. A diagnosis of BIH was made.

Discussion: Pregnancy has shown to promote or worsen BIH. The gravid uterus increases intra-abdominal pressure, impeding cerebral venous return leading to increased intracranial pressure. Management of labour analgesia is controversial in patients with BIH. Uterine contractions are associated with increased intracranial pressure that becomes more marked during periods of inadequate analgesia. Epidural analgesia minimises the haemodynamic changes during contractions, resulting in minimal effect on intracranial pressure. Opioid analgesics may increase pCO2 via respiratory depression, thereby increasing cerebral blood flow and intracranial pressure. Post lumbar puncture headaches tend not to occur in patients with BIH as CSF drainage can be therapeutic. This case highlights the importance of not always assuming the diagnosis of a post-dural puncture headache in patients suffering from a headache following neuro-axial blockade. An early diagnosis of BIH in this patient may have prevented papilloedema. A thorough history is imperative to elucidate the cause of any post partum headache.

References
P87 Emergency caesarean section in an anticoagulated patient with fontan circulation and bleeding placenta praevia.

T Bhari, T Day-Thompson, K Hasan
Anaesthetics, Birmingham Women’s Hospital, Birmingham, UK

Introduction: The Fontan repair is a palliative procedure performed for a variety of complex heart malformations. We report a patient with a Fontan circulation and full anticoagulation who presented for an emergency caesarean for bleeding placenta praevia.

Case report: A 31 year old lady in her second pregnancy at 30 weeks gestation presented in labour with episodes of fresh bleeding and variable decelerations on the CTG for a category 1 caesarean. She was born with tricuspid and pulmonary atresia palliated at 14 years of age with a newer Fontan variation, total cavo-pulmonary shunt (TCPC). Her normal oxygen saturation was 90% on air with NYHA 2 functional class. She was fully anticoagulated with enoxaparin and had her last dose 6 hours earlier. Monitoring in theatre included ECG, SpO2 and invasive arterial BP. She was given a rapid sequence induction with propofol and suxamethonium. Anaesthesia was maintained with isoflurane in oxygen and a remifentanil infusion. A phenoxyphrine infusion helped maintain haemodynamic stability. A cell saver was set up for intra-operative blood salvage. Intraoperative estimated blood loss was 800 ml. She gave birth to a girl (1205g; Appar 5 & 8 at 1 & 5 mins). Paracetamol and a morphine PCA provided post operative analgesia. Recovery was uneventful.

Discussion: In a Fontan circulation, venous return is delivered directly to the pulmonary circulation. High pulmonary resistance may shunt deoxygenated blood to the heart via the surgical fenestration. These patients are prone to dysrhythmias and myocardial failure. For those with newer modifications of the Fontan procedure such as total cavo-pulmonary circulation, fewer data are available and late outcome and survival is yet unknown. Several factors increased the complexity of this case. These included its urgency, the timing (3am), and full anticoagulation precluding neuraxial anaesthesia and with implications for haemorrhage control. She was managed by coordinated input from consultants in anaesthetics, obstetrics, haematology and paediatrics. Anaesthetic goals included maintenance of preload, rhythm and contractility and avoidance of pulmonary hypertension. Titrated infusions of remifentanil and phenoxyphrine helped maintain cardiovascular stability. The availability of cell salvage would have been invaluable in the event of brisk haemorrhage. With advances in cardiac surgery, many more patients with the Fontan circulation are surviving to adulthood and pregnancy. The knowledge base continues to evolve, for example in the management of patients with the most recent modifications to the Fontan technique such as TCPC. This case highlights these management challenges and how they can be compounded by other variables in these high risk patients.

References

P88 Patent foramen ovale (PFO) as a mechanism of paradoxical embolism and stroke during pregnancy: a case report

NC Doody, G Peters, T Dunn
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Introduction: A PFO is common in the pregnant population, with an incidence around 30%. Paradoxical embolism causing stroke is not. We present a case of stroke in a parturient with increased risk factors for thromboembolism.

Case report: A 26-year-old para 1+0 with a history of SLE presented at 27 weeks gestation with headaches and dysphasia. She was diagnosed with an ischaemic stroke with evidence of old infarction on CT scan. She made a complete neurological recovery. Investigation revealed normal trans-thoracic echo (TTE), doppler US scan of legs and normal coagulation and thrombophilia screens. A transcranial doppler bubble test was normal at rest, but dramatically positive on valsava manoeuvre, leading to a diagnosis of presumed PFO with a large right-to-left shunt. PFO was confirmed on subsequent TTE bubble test. She was treated with therapeutic LMWH. At 36 weeks gestation her baby required delivery due to severe IUGR. Following cardiology, neurology and haematological input it was decided she should be converted to unfractionated heparin and induced for an elective assisted vaginal delivery under epidural analgesia. This method was chosen as she had a small baby, had a previous SVD and in order to avoid the increased risk of air embolus associated with an elective caesarean section. Prior to induction the heparin infusion was stopped and invasive blood pressure monitoring and epidural analgesia were established. Following artificial rupture of membranes (ARM) an oxytocin infusion was commenced. A 1.96kg female was delivered by forceps 3 hours later. The patient was discharged on LMWH and will complete 3 months of warfarin therapy.

Discussion: Pregnancy and SLE are both causes of a hypercoagulable state. Despite being unable to locate a source of emboli, it is likely that our patient's recurrent strokes were as a result of her PFO and this hypercoagulable state. Paradoxical embolisation is a recognised cause of stroke during pregnancy. The concern with a PFO is that if right atrial pressure (RAP) exceeds left atrial pressure (LAP) shunting results. This predisposes to maternal and foetal hypoxia and paradoxical emboli. This can occur with pushing at delivery (increased RAP) and during anaesthesia for caesarean section (decreased LAP). Our method avoided active pushing. ARM and oxytocin infusion minimised the period without anticoagulation. Epidural anaesthesia would have been used had urgent caesarean section been necessary. This report highlights issues surrounding ischaemic stroke and PFO in pregnancy, and re-emphasises the importance of multi-disciplinary discussion in high risk cases.

References
P90 Undiagnosed phaeochromocytoma causing haemodynamic instability during elective caesarean section

CN Makura, E Walker
Anaesthetics, Heart of England NHS Foundation trust, Birmingham, UK

Abstract withdrawn from meeting

P89 Postpartum coronary artery compression secondary to a rib exostosis caused by hereditary multiple exostoses

IR Mohamed Iqbal, N Wharton
Department of Obstetric Anaesthesia, St Michael's Hospitals, Bristol, UK

Introduction: Left ventricular dysfunction post partum is rare. We present a case secondary to left anterior descending artery (LAD) compression by a rib exostosis.

Method: An otherwise fit and well 17 year old presented to delivery suite with spontaneous rupture of membranes and tightenings. She was known to have hereditary multiple exostoses and had been counselled antenatally with a view to a low risk pregnancy. In childhood she had multiple bony lesions excised from her lower limbs. During pregnancy she complained of pain in both her knees, shoulder blades and back. Following obstetric assessment her labour was augmented with syntocinon and a lumbar epidural was sited for labour analgesia with good effect. She made satisfactory progress and had a forceps delivery of a healthy baby boy. She was discharged to the post natal ward 2 hours after delivery. 12 hours following delivery she developed central chest pain and nausea. She was hypoxic, tachycardic but normotensive. High dependency care was initiated. Investigations carried out included blood tests which confirmed a neutrophilia, haemoglobin of 10.1g/dl and normal renal function. The ECG showed sinus tachycardia. Suspecting pulmonary embolism, a V/Q scan was carried out which was strongly positive for a PE. Concurrently her troponin T level returned markedly elevated at 389ng/l. CT pulmonary angiography showed no evidence of a pulmonary embolus but small amounts of pericardial fluid and a dilated left ventricle. A transthoracic echocardiogram showed an ejection fraction of 45% and anterior wall motion abnormality. She was transferred to CCU and commenced on beta blockade, ACE inhibitors and aspirin. She improved markedly on medical therapy. MRA of her coronary vessels showed compression of her LAD artery by a large exostosis arising posteriorly from the 3rd rib. She made a good recovery following the acute event. 1 week postnatal her ejection fraction had improved to 50% and the wall motion abnormality was stable. She was discharged home 10 days later. She will undergo rib resection once her condition has stabilised.

Discussion: Hereditary multiple exostoses is a rare autosomal dominant disorder affecting 1 in 50 000 - 75 000 individuals. Exostoses occurs most commonly during period of rapid bone growth i.e infancy to late adolescence. The common sites are upper and lower limbs, pelvis, scapula and rarely ribs. The skull and spine tends to be spared. In this case it is unclear if the normal cardiovascular changes in pregnancy precipitated the compression by the undiagnosed exostosis, or if pregnancy poses an increased risk of bony growth in this population.

Reference
P91 Impact of a daily safety checklist in an obstetric high dependency unit
K O'Connor, R Kearns, K Litchfield
Princess Royal Maternity Unit, Glasgow Royal Infirmary, Glasgow, UK

Introduction: Care bundles and daily safety checks as developed by the Institute of Healthcare Improvement have been shown to improve patient safety in the general critical care setting. We introduced a similar daily safety checklist to our obstetric high dependency unit (HDU) with the aim of improving patient safety. The checklist ensures ward round review of drug kardex, thromboprophylaxis, fluid regime and integrity of invasive lines. The impact of the daily checklist on the adequacy of information documented in the case notes following HDU admission was audited.

Methods: A retrospective case note review of mothers admitted to HDU prior to the checklist introduction was performed and documentation of information requested on the new daily checklist assessed. A program of education emphasising the practicalities associated with its use and importance of completion accompanied the introduction of the new checklist. The audit was then repeated prospectively using solely the checklist for information collection.

Results: The case notes of 20 parturients were reviewed prior to introduction and 10 after. The results are summarised below. Percentages for central venous and arterial access refer to only those patients who had such a line in situ.

<table>
<thead>
<tr>
<th>Safety checks</th>
<th>Pre checklist info documented (%)</th>
<th>Post checklist info documented (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kardex review</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Thromboprophylaxis</td>
<td>53</td>
<td>100</td>
</tr>
<tr>
<td>Fluid regime</td>
<td>45</td>
<td>100</td>
</tr>
<tr>
<td>Arterial line</td>
<td>7 (n=12)</td>
<td>100 (n=5)</td>
</tr>
<tr>
<td>Central line</td>
<td>8 (n=4)</td>
<td>100 (n=4)</td>
</tr>
</tbody>
</table>

Discussion: The daily safety checklist was successfully incorporated into obstetric high dependency ward rounds. Documentation standards prior to its introduction were unsatisfactory with review of kardex particularly poorly documented. Compliance with standards of documentation has been observed to improve significantly. Future audit will aim to refine the checklist and assess the impact on clinical incidents.

References

P92 Audit of referrals to a high risk obstetric anaesthesia clinic
P Gregory, E Combeer
Anaesthetics Department, Frimley Park Hospital, Frimley, UK

Introduction: In the UK, the maternal mortality rate during childbirth is 14 per 100,000 births with anaesthetic complications accounting directly for 0.26% of these deaths. OAA/AAGBI guidelines recommend that women at high risk of anaesthetic complications should be seen antenatally by a senior anaesthetist for assessment and the preparation of a management plan to minimise anaesthetic risks. The hospital in this study offers a high risk anaesthesia clinic to women and accepts referrals from midwives and obstetricians against a stand-alone checklist of referral criteria.

Aim: The aim of this audit was to compare the appropriate and inappropriate referrals of women to the above clinic against internally set standards to assess performance and to identify areas for improvement.

Standards: All women meeting referral criteria should be referred. Additionally, all women not meeting the referral criteria should not be referred.

Method: A retrospective review of both hand-held notes and hospital records for 200 consecutive parturients over the period of 01/10/2010 to 16/10/2010 was made. All referrals made to the clinic were noted as well as the appropriateness of the referral. Presence of met referral criteria was sought for all women.

Results: 178/200 cases were included in this study. Referral rate to the clinic was 8%. 14 women met criteria for referral and 12 (86%) of these were referred. There were no inappropriate referrals. In general, documentation of referral to the clinic was poor.

Conclusions: Overall good performance with 6 out of 7 women being appropriately referred. The current system is specific (100%) but moderately insensitive (86%). Recommendations include the re-design of the referral checklist including it’s integration into hand-held notes, and re-training of checklist users. Re-audit should occur at 6 months.

References
P93 Outcomes of high-risk obstetric patients referred to the anaesthetic clinic.
K Slade, SJ Young, KN Litchfield
Princess Royal Maternity, Glasgow Royal Infirmary, Glasgow, UK

Introduction: Early identification, investigation and planned anaesthetic management may minimise maternal morbidity and mortality in the high-risk obstetric patient. We reviewed patients referred to the anaesthetic clinic according to set referral guidelines. A plan for anaesthetic management was made.

Methods: We searched the paper database held for patients referred to the anaesthetic high-risk clinic in 2009. We cross-referenced these with the electronic PROTOS obstetric database to obtain anaesthetic and obstetric outcomes. Data were stored and analysed on Excel.

Results: 369 patients were seen (outcome data missing for 13). 15 (4.1%) required further tertiary referral and investigation. A specific anaesthetic plan was made for 235 (64%) patients and followed for 129 (55%). There were no deaths or admissions to ICU. Maternal outcome post delivery was assessed as worse in 23 (6.5%) cases.

Table: Demographics and outcomes of high-risk parturients referred to anaesthetic clinic.

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>Median (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 (17-40)</td>
<td></td>
</tr>
<tr>
<td>Gestation when seen (wks)</td>
<td>34 (6-42)</td>
</tr>
<tr>
<td>Gestation at delivery (wks)</td>
<td>39 (14-44)</td>
</tr>
<tr>
<td>Hospital Length of stay (days)</td>
<td>4 (1-20)</td>
</tr>
<tr>
<td>Type of delivery</td>
<td>n (%)</td>
</tr>
<tr>
<td>ELCS</td>
<td>117 (32.9)</td>
</tr>
<tr>
<td>EMCS</td>
<td>58 (16.3)</td>
</tr>
<tr>
<td>Instrumental delivery</td>
<td>38 (10.7)</td>
</tr>
<tr>
<td>SVD</td>
<td>141 (39.6)</td>
</tr>
<tr>
<td>Delivery &lt;20wks</td>
<td>2 (0.5)</td>
</tr>
<tr>
<td>Type of anaesthetic</td>
<td></td>
</tr>
<tr>
<td>Spinal</td>
<td>126 (35.9)</td>
</tr>
<tr>
<td>Epidural</td>
<td>80 (22.4)</td>
</tr>
<tr>
<td>CSE</td>
<td>17 (4.8)</td>
</tr>
<tr>
<td>General anaesthetic</td>
<td>12 (3.4)</td>
</tr>
<tr>
<td>None</td>
<td>121 (34%)</td>
</tr>
<tr>
<td>Severe maternal morbidity</td>
<td>6 (1.6%)</td>
</tr>
</tbody>
</table>

Conclusion: The high-risk obstetric patients reviewed at the anaesthetic clinic had a severe maternal morbidity rate below that of the average obstetric population in Scotland. This may suggest that timely review and planning for these patients can reduce morbidity.

References

P94 Audit of blood transfusion in the obstetric population
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Introduction: Major blood loss in childbirth can be a life threatening event and requires prompt treatment. However, moderate degrees of blood loss are usually well tolerated without the need for blood transfusion. AAGBI guidelines recommend blood transfusion for patients with a haemoglobin concentration <7g/dl or anaemia symptoms, aiming for a post-transfusion concentration of 8-10g/dl. The patient should be made aware of the risks of transfusion. This audit aimed to identify unnecessary red blood cell transfusions in our institutions and examine the documentation to transfuse and discussion with the patient.

Method: The hospital blood bank identified 55 obstetric patients who received blood in a six month period. Case notes were successfully retrieved and audited for 48 patients. Information obtained included basic demographics, timing of transfusion, and pre- and post-transfusion haemoglobin concentrations. We examined documentation of the decision to transfuse and discussion with the patient.

Results: The 48 women audited underwent 53 separate transfusion episodes. 15 transfusion episodes took place around the time of delivery, a further 16 episodes were within 24 hours of delivery and 22 episodes occurred after 24 hours. The indications for transfusion were: active bleeding 15 episodes; symptomatic anaemia 24; asymptomatic anaemia 12; unclear from notes 2. The modes of delivery were: spontaneous vaginal delivery 18 patients; instrumental delivery 16; caesarean section 14. The majority of transfusions (32 of 53 episodes) were of 2 units of packed red cells. Only one woman had untreated antenatal anaemia. We considered 5 transfusions to be unnecessary. Four were in asymptomatic patients with Hb >7g/dl. In the fifth case a single unit transfusion was requested by a consultant anaesthetist for symptomatic anaemia. A further transfusion was given without any clear reason or documentation. In non-bleeding patients the mean pre-transfusion Hb was 7.0g/dl and the rise in haemoglobin concentration varied from 0.5 to 2.8 g/dl per unit transfused. Overall, 19 patients were transfused to a Hb >10g/dl of whom only 9 were bleeding when the transfusion was requested. A reason for transfusion was documented in 51 of 53 episodes. In 11 cases there was no documentation of discussion with the patient about blood transfusion.

Discussion: The majority of blood transfusions took place in women who were not actively bleeding. Most transfusions were indicated, however 19 transfusions resulted in a Hb >10g/dl. Blood composition can change rapidly in the immediate post-partum period. We recommend regular reassessment of the patient and haemoglobin concentration before transfusing further units of blood. We consider single unit transfusions to be appropriate for stable patients with anaemia symptoms. We saw examples of excellent documentation of decision making and consent but this was not uniform.

Reference
P95 Blood product use during major obstetric haemorrhage
SJ Cross, J Cheung, SA Thompson
Department of Anaesthesia and Pain Medicine, Royal Infirmary of Edinburgh, Edinburgh, UK

Introduction: Major obstetric haemorrhage (MOH) remains a significant cause of maternal mortality and morbidity in the UK. Blood components such as fresh frozen plasma (FFP) and platelets are significantly more likely to cause morbidity than packed red cells. We carried out a retrospective audit of the use of blood products during MOH.

Methods: We identified women suffering an estimated blood loss (EBL) greater than 2000ml over a one year period. The notes were examined for clinical details, blood loss and the use of blood products. We established criteria to classify the appropriateness of blood product use based on clinical information, laboratory results and national guidelines. Each bag of blood product transfused was categorised as definitely indicated, probably indicated, probably not indicated or definitely not indicated.

Results: Of 6638 annual deliveries 72 (1.1%) patients suffered an EBL >2000ml, of which 57 patients’ notes were available. Blood loss ranged from 2000-10,000ml (mean 2743ml). 27 patients received red cell concentrate (RCC) and 10 patients received blood products. 5/9 patients who received platelets had a final platelet count of >80x10^9/L. 6/9 patients who received FFP or cryoprecipitate had a post-operative fibrinogen >2.0g/dl.

Conclusions: When clinicians make decisions regarding blood product transfusion in MOH using clinical judgment and laboratory results alone there is a tendency to over transfuse. Access to near patient testing may allow clinicians to make better decisions during a MOH. When considering the risks, financial cost and availability issues surrounding blood products we should be looking at ways to improve our use of this resource.

References

P96 Blood transfusion in obstetrics - are we giving too much?
K Kotur, J Dawson, S Avery,* Z Eke
Department of Anaesthesia, Royal Victoria Infirmary, Newcastle-upon-Tyne, UK, *Transfusion Services, Royal Victoria Infirmary, Newcastle-upon-Tyne, UK

Background: Blood transfusion can be life saving in the management of peripartum haemorrhage, but is it not without risk. Allogeneic blood transfusions have significant complications and a higher mortality than major obstetric haemorrhage. To rationalise transfusion on labour suite, the RCOG produced the ‘green-top’ guidelines in 2007. In our obstetric department, we adapted our own postnatal transfusion algorithm. Two audits were completed: 1) To assess the effectiveness of the departmental algorithm 2) To explore any differences between anaesthetic and obstetric trainees when prescribing blood on labour suite.

Methods: 1) All postnatal patients with a haemoglobin (Hb) <9g/dL or who received blood transfusions during a period of 3 months were identified via laboratory records. All case notes were examined and the appropriateness of transfusion assessed retrospectively, against the set algorithm. 2) Questionnaires were circulated amongst obstetric and anaesthetic trainees. These included 5 scenarios asking if the trainee would transfuse the patient involved followed by questions about the risks of transfusion and alternatives to allogeneic blood.

Results: 1) 85 obstetric patients were identified over the 3 months. 77 had Hb levels <9g/dL; 27 patients in total (32%) received a blood transfusion. According to the algorithm, 18 women with Hb levels <9g/dL were all transfused appropriately. 9 patients transfused with Hb levels ≥9g/dL were actively bleeding, symptomatic or returning to theatre, therefore judged to be clinically appropriate. 60% (16/27) of the transfused patients were discharged with Hb levels ≥9.0g/dL; all were prescribed iron supplements prior to going home. 2) Anaesthetic trainees showed a more consistent transfusion target (Hb >8g/dL) whereas obstetric trainees expressed a wider range (≥7–10g/dL). However, when presented with the scenarios, there was little difference in opinion. Obstetric trainees demonstrated sound awareness of iron therapy and erythropoietin, but little of cell savers and intra-operative strategies. The reverse was evident for anaesthetic trainees.

Discussion: Despite compliance with the current transfusion algorithm in our department, greater than half of the transfused obstetric patients were discharged with Hb levels ≥9g/dL. This implies excessive transfusions, thus exposure to unnecessary risk. Re-evaluation of the current algorithm to single unit transfusions may be required. Trainees prescribe the majority of transfusions, but there appear to be some differences in practice between anaesthetists and obstetricians. We propose teaching sessions in a multi-disciplinary format. This will hopefully enable a uniform approach to anaemic obstetric patient.

References
**P97 Blood transfusions in the obstetric population. Are we giving too many?**

T Starkie, L Drake, D Thorp-Jones  
*Department of Anaesthesia, Derriford Hospital, Plymouth, UK*

**Introduction:** Recent publications suggest that the obstetric population can be over transfused by up to 31%. Anecdotal evidence in our institution suggested that this could be a problem. With blood becoming more scarce and the potential risks of allogeneic transfusion, we were interested in quantifying our obstetric transfusion practice and comparing it with regional guidelines.

**Method:** Information on all pregnant women receiving a blood transfusion in 2008 was collected (104 mothers). Laboratory haemoglobin (Hb) measurements were recorded immediately before and after a blood transfusion. These were compared against the South West transfusion guidelines where transfusion is recommended in a patient with Hb less than 7 g/dl and post transfusion Hb should not exceed 10 g/dl unless the patient is at high risk of ongoing blood loss. For the patients who were given transfusions which were not deemed to be required clinically or were over transfused the notes were examined to investigate cause.

**Results:** In 2008 there were a total of 108 obstetric women who received a blood transfusion. In 66.6% of these patients their pre transfusion Hb > 7 g/dl. There were 5 who had a Hb > 10 g/dl pre transfusion. Post transfusion haemoglobins of greater than 10g/dl occurred in 45.6% of women with Hb > 12. The commonest prescription for blood was 2 units (50.9%) with the next most common being 3 units (18.5%).

![Graph of Hb pretransfusion, the horizontal line defines Hb=7](image)

When the notes were examined of patients who had been over-transfused, common themes appeared: Those were trainee decisions made out of hours, often in stressful situations, with little senior support or guidance.

**Discussion:** Over transfusion is occurring very commonly at our institution. The transfusion guidelines are not strictly adhered to and once the decision to transfuse was made then the tendency was to administer too many units of blood. The “default” prescription was commonly 2 units. Actions required include multiple blood conservation strategies developed with our obstetric colleagues, targeted staff CME and trainee support to ensure improvement.

**References**

2. SW Region Blood Transfusion Committee Guidance for the use of blood components. 2010.
P99 Maternal position during obstetric epidural insertion: is it related to the incidence of accidental dural puncture?

C Todd, N Hollister, S Ball,* D Thorp-Jones, J Coghill
Department of Anaesthesia, Derriford Hospital, Plymouth, UK, *Centre for Health and Environmental Statistics, University of Plymouth, Plymouth, UK

Introduction: Accidental dural puncture (ADP) has a quoted incidence of 0.19% to 3.6% of all obstetric lumbar epidurals and is associated with significant maternal morbidity. Most obstetric epidurals are performed with the woman either sitting or lying in the lateral position. The position adopted depends on the preference of both the anaesthetist and the parturient as some women in labour find certain positions difficult to adopt. We set out to determine if maternal position during epidural insertion had any influence on the rate of ADP.

Methods: We performed a retrospective analysis of our local obstetric anaesthetic database, containing 18,385 obstetric epidurals performed over a fifteen year period. A data sheet is completed in our hospital for each epidural inserted, stating amongst other things the maternal position adopted during epidural insertion. ADP was defined as clear evidence of CSF in the needle or catheter, spinal anaesthesia following a test dose or symptomatic ADP headache detected during follow up. The data was reviewed to determine if the incidence of ADP was related to maternal position adopted during insertion.

Results: Of 18,385 lumbar epidurals performed a total of 129 ADPs were detected, giving an overall incidence of 0.7%. Maternal position was categorised into lateral, sitting or not stated. Of the 18,385 epidurals performed, 5,219 were inserted with the parturient in the lateral position, 35 of these were complicated by ADP (0.67%). 9,066 epidurals were inserted in the sitting position, 58 of which were complicated by ADP (0.64%). A further 4,100 epidurals were inserted but no patient position was recorded. 36 of these had recognised ADP (0.88%). The relative risk of ADP with the mother lying laterally rather than sitting is 1.05 (95% CI 0.69-1.59, P=0.825).

<table>
<thead>
<tr>
<th>maternal position</th>
<th>total epidurals in this position</th>
<th>epidurals with no ADP</th>
<th>epidurals with ADP</th>
</tr>
</thead>
<tbody>
<tr>
<td>lateral</td>
<td>5219</td>
<td>5184</td>
<td>35</td>
</tr>
<tr>
<td>sitting</td>
<td>9066</td>
<td>9008</td>
<td>58</td>
</tr>
<tr>
<td>not stated</td>
<td>4100</td>
<td>4064</td>
<td>36</td>
</tr>
</tbody>
</table>

Discussion: It has been postulated that a patient in the sitting position will have a gravitational increase in CSF pressure and therefore be at a potential increased risk of ADP. However, we have found there to be a lack of evidence of an association between maternal position and ADP rate. The position adopted for epidural insertion should therefore be chosen depending on maternal comfort and preference as well as the preference of the individual anaesthetist.

References
P101 Improvement in confidence ratings after one-day high fidelity simulation for novices in obstetric anaesthesia

Esther Flavell, Siobhan King, Rachael Craven, *Anaesthetics, Gloucester Royal Hospital, Gloucester, UK, †Anaesthetics, Frenchay Hospital, Bristol, UK

Background: An RCOA 2009 survey identified areas of particular concern for trainees prior to starting on the obstetric on-call rota. Concerns ranged from technical ability to managing emergency cases in the operating theatre. We set up a simulator course within our deanery to address these concerns, with the aim of increasing trainee confidence and competence.

Methods: CT 2 (ST 2) trainees about to start obstetric on-calls were identified and invited to attend a one day simulation course. High fidelity simulation of both general and regional anaesthesia based scenarios were used. Examples included failed intubation, post-partum haemorrhage and intra-operative pain during caesarean section. A workshop on epidural technique and trouble-shooting was included. The standard of difficulty of the scenarios was in line with the workplace assessment of basic competencies for obstetric anaesthesia (WABCOA). The seven candidates voluntarily completed pre- and post-course visual analogue scores (0 - 100 mm) rating confidence for a range of procedures or common obstetric problems.

Results: The mean increase in confidence for all the procedures and problems was 28.2 mm. Further analysis showed that the candidate with the most experience (over 20 sessions) had the lowest increase in confidence score of 8.9 mm. Three candidates had no previous obstetric experience, two candidates had done less than 5 sessions and one candidate had done 10 - 20 sessions.

Table to show the mean increase and range of VAS (mm) for the different procedures assessed

<table>
<thead>
<tr>
<th>Procedure assessed</th>
<th>Mean increase in VAS Range of VAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidurals</td>
<td>31.0 (10 - 45)</td>
</tr>
<tr>
<td>Emergency GA</td>
<td>25.7 (10 - 45)</td>
</tr>
<tr>
<td>Emergency RA</td>
<td>32.9 (8 - 54)</td>
</tr>
<tr>
<td>PET &amp; obstetric problems</td>
<td>29.8 (11 - 52)</td>
</tr>
</tbody>
</table>

Discussion: The one day simulation course consistently increased confidence ratings amongst the candidates for practical procedures and management of obstetric problems. This course will be developed to facilitate assessment of basic competencies (WABCOA) prior to being on-call for obstetrics and help to develop the non-technical skills that are vital for successful teamwork on the delivery suite. This course seems to be most beneficial to those trainees who are undertaking their supervised introduction to obstetric anaesthesia.

References
2. Purva M. Quinn AC. The role of simulation in obstetric anaesthesia training. RCOA Bulletin 2010; 63: 21-22

P102 Audit on compliance with antenatal anaesthetic advice and anaesthetic management in morbidly obese patients

AP Singh, H Brooks
Anaesthetics, Leicester General Hospital, Leicester, UK

Introduction: Obese pregnant women present a big challenge to the maternity services. Almost 5% of pregnant women in U.K. have a BMI≥35 and 2%≥40. These patients frequently present with anaesthetic difficulty. Complications rates are significantly higher than non-obese mothers. The CEMACH report 2003-2005 and joint CMACE/RCOG guidelines recommend, that pregnant women with a booking BMI≥40 should have an antenatal consultation with an obstetric anaesthetist. The recent CMACE audit project has highlighted the various problems in this group of patients, and has identified the need for an integrated approach. This will set the standard for high quality maternal care. In our trust, patients with BMI≥40 are advised to attend the high risk anaesthetic clinic during the antenatal stage. Most women are advised to have an epidural early in labour. The purpose of this retrospective audit was to evaluate the uptake of epidural analgesia in this group of women and the mode of delivery.

Methods: We used the high risk anaesthetic clinic database to identify 100 consecutive maternity patients with BMI≥40 who had attended the anaesthetic clinic for the purpose of anaesthetic assessment and counselling. Patients for elective caesarean sections were not considered. We then accessed the maternity Eurokong database to ascertain, whether epidural analgesia was used and the subsequent mode of delivery.

Results:

<table>
<thead>
<tr>
<th>Procedure assessed</th>
<th>Vaginal delivery</th>
<th>Instrumental in theatre</th>
<th>C-section</th>
<th>C-section GA</th>
<th>Previous C-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidural</td>
<td>44% (11)</td>
<td>8% (2)</td>
<td>48% (12)</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>No epidural</td>
<td>92% (12)</td>
<td>0</td>
<td>8% (1)</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Multi epidural</td>
<td>63% (10)</td>
<td>6% (1)</td>
<td>31% (5)</td>
<td>0</td>
<td>25% (4)</td>
</tr>
<tr>
<td>Multi no epidural</td>
<td>83% (38)</td>
<td>0</td>
<td>13% (6)</td>
<td>4% (2)</td>
<td>26% (12)</td>
</tr>
</tbody>
</table>

74% multigravidas had no epidurals. Among them 13% had regional c-section and 4% had GA sections.

Discussion: The epidural uptake in the primigravida group was high (66%), while it was low in the multigravida group (26%). The epidural rate for all maternities in our unit is 40% in primips and 13.7% for multiparous, so there was a higher uptake in the obese groups. Epidurals were sited in a high number of judiciously selected patients. A written plan and early epidural is recommended. More widespread epidurals should be encouraged in the multiparous population.

References
1. CMACE & RCOG Joint guideline - Management of Obesity in pregnancy. March 2010
P103 Failure rate of neuraxial anesthesia in morbidly obese parturient

V Poupinel, D Provost, V Compré, S Leroy, M Rieu, R Gillet, B Rachet, L Marpeau,* B Dureuil
Department of Anaesthesiology and intensive care, Charles Nicolle’s University Hospital, Rouen, France, *Department of Obstetrics and Gynecology, Charles Nicolle’s University Hospital, Rouen, France

Background: Obesity in parturients is associated with higher rate of caesarean or forceps and increases risks of general anaesthesia. Neuraxial anesthesia (NA) for this population is recommended despite no technical difficulties. According to systematic reviews, the failure rate ranges from 4 to 42% [1]. The date of the studies and the small number of cases analyzed limited their pertinence. Our study aimed to assess the failure rate of neuraxial anesthesia in obese parturient women. Methods: We conducted a retrospective study from Oct. 2005 to Dec. 2009 in our tertiary hospital, comparing obese morbidly parturients women to non obese. We included all obese parturients women with body mass index (BMI) higher than 40 undergoing a NA for delivery. The studied group was compared with a control group including parturients women with a BMI lower than 30, delivering on the same day with the same anesthetic and obstetrical team. Exclusion criteria were fast delivery, contra-indications or refusal of NA. The primary outcome was the failure rate of NA defined by the need for general anesthesia for caesarean section or forceps, or VAS during labor except during delivery >2/10cm. Epidural data such as depths of the epidural space, procedural time, complications during the procedure (multi-puncture, resettlement, post dural puncture headache, vascular puncture, paresthesia, hypotension requiring ephedrine), infectious complications and length of hospital stay were also recorded.

Results: During the study, 646 parturients women were included. The failure rate of NA was significantly higher in the studied group than in the control group (6.8% vs 1.2% ***). Overall complication rate relating to NA was also higher in the group studied (36% vs 12.4%, ***).

<table>
<thead>
<tr>
<th></th>
<th>Morbidly obese parturient (n=323)</th>
<th>Control (n=323)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of epidural space (cm)</td>
<td>7.2 +/- 1.4**</td>
<td>4.7 +/- 1.4</td>
</tr>
<tr>
<td>Procedural time (min)</td>
<td>16 +/- 10.2**</td>
<td>11.9 +/- 4.6</td>
</tr>
<tr>
<td>Infectious complications</td>
<td>10%*</td>
<td>4.3%</td>
</tr>
<tr>
<td>Length of stay (d)</td>
<td>5.3 +/- 2*</td>
<td>4.6 +/- 1.4</td>
</tr>
</tbody>
</table>

*: p< 0.05 **: p<0.01 ***: p< 0.001 The results are expressed as mean and SD.

Conclusion: Our failure rate is one of the lowest rates recorded. Moreover, NA is more difficult and associated with more complications. The increasing frequency of morbidity obese parturients women during the last ten years and the higher risk of general anaesthesia in this population encourage the use of NA.

References

P104 How big is the problem? How CMACE are we?

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Introduction: Body mass index (BMI) is used to approximate total body fat; it can help estimate relative risk. Morbid obesity in pregnancy is defined as booking BMI >35kg.m-2. Five percent of women over 24-weeks gestation have BMI >35: this group was the focus of the CMACE 2010 report [1]. A BMI >30 in pregnancy is associated with an increased risk of emergency caesarean section (CS) equating to an odds ratio of 1.6 [2]. We wanted to ascertain the incidence of this level of obesity on unit, and whether or not these women had different obstetric outcomes.

Method: We conducted a prospective audit of all labouring women in our district general hospital over a 4-month period in 2010. Data on BMI at booking, inductions and mode of delivery were recorded.

Results: 443 forms were returned, 3 contained some missing data. Overall return rate was a disappointing 50%. 45 of 443 parturients had a BMI >35 (10.2%). The table below shows the vaginal delivery rate, emergency CS rate and induction rate for each BMI group above and below 35 and total overall.

<table>
<thead>
<tr>
<th>BMI &gt;35</th>
<th>BMI &gt;35</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal delivery % (n)</td>
<td>75.5 (298/396)</td>
<td>71.1 (32/45)</td>
</tr>
<tr>
<td>CS % (n)</td>
<td>16.7 (66/396)</td>
<td>22.2 (10/45)</td>
</tr>
<tr>
<td>Induction % (n)</td>
<td>10.1 (40/397)</td>
<td>33.3 (15/45)</td>
</tr>
</tbody>
</table>

Overall emergency CS rate across all groups was 17.2%. The CS rate was 5% higher in the BMI >35 group than in those with a lower BMI. Women with BMI >35 had an increased risk of being induced (33.3% vs. 10.1%).

Discussion: We appreciate that our low return rate and the small numbers of our audit limit detailed interpretation. In comparison with the CMACE report, we have a higher than expected incidence of BMI >35 (10% vs. 5% for the UK and 10% vs. 4.6% for SW region) [1]. Our incidence of women being induced was around 3 times higher in women with BMI >35 than those with BMI <35. Our induction rates are much lower than those presented in CMACE (12.4% vs. 20% overall and 33.5% vs. 42% for BMI >35). The chance of vaginal delivery was also better than expected from the CMACE data in the BMI >35 group (71.1% vs 54.9%). Despite now having both national and regional level data for maternal BMI in the UK, it is important to determine prevalence at a local level so our maternity services can be organised to the appropriate standard within our Trust.

References
**P105 Morbid Obesity in Parturient, Are we doing enough?**

D Joseph, S Sivasubramaniam

Anaesthetics, Sandwell & West Birmingham Hospitals NHS Trust, Birmingham, UK

**Introduction:** Obesity is the biggest challenge facing maternity services today, with one in five pregnant women in the UK being obese. Rates of obesity in pregnancy are rising across the UK with 1 in 4000 women who gives birth now found to have extreme obesity, defined as body mass index [BMI] of 50 or more. The CMACE and RCOG have recently produced guidelines for the management of morbidly obese parturient. We sought to compare our current practice with the set standards.

**Methods:** We identified 30 women with BMI more than 40, over a 4 month period, undergoing a caesarean section and compared our management with the recommendations. The following observations were recorded: Attendance of pre-op anaesthetic clinic, whether weight and height were measured and repeated during pregnancy, whether they had advice on weight management, whether they knew about anaesthetic risks, whether anaesthetist was informed on their arrival to labour ward and the dose of thrombo-prophylaxis prescribed.

**Results:** There were 14 women who were admitted for elective LSCS and other 16 were for emergency LSCS. 13 women had BMI between 40 and 45 and 17 had a BMI between 45 and 50. 90% of women were referred to the anaesthetic clinic and anaesthetic risks were documented in 90% of women. All women had BMI recorded during booking, but was repeated only in 10% of them. 86.6% of women had no recollection of any advice on weight management. 28.5% of women were not able to recall any anaesthetic risks. Anaesthetist was not informed in 4 out of the 16 emergency admissions. 80% of women did not receive the appropriate dose of enoxaparin postoperatively.

**Discussion:** Morbid obesity during pregnancy is associated with increased morbidity and mortality with significant cost implications to NHS. We observed weight measurements during pregnancy were not repeated and many women could not recall any advice on active weight management. Re-measuring BMI will help identify a proportion of women who attain BMI more than 40 during pregnancy. Pregnancy is a time when these women will encounter health professionals, who have the opportunity to educate these women on the risks of pregnancy and also to potentially effect change that will be beneficial life long. It is important that the women are aware of the increased risk of maternal and foetal complications associated with obesity and they should have the opportunity to minimise the risk of complications prior to and during current and future pregnancies. The dose of enoxaparin was insufficient in a significant proportion of women.

We recommend: BMI should be repeated during pregnancy in the third trimester. Parturient should receive more education and information regarding weight management during and before pregnancy, and anaesthetic risks should be explicitly discussed and recorded along with the anaesthetic management plan in all parturient with BMI more than 40.

**Reference**


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**P106 Obstetric outcomes of morbidly obese women at a London teaching hospital**

J Mayer, B Graham, V Sodhi

Anaesthesia, Queen Charlotte’s and Chelsea Hospital, London, UK

**Introduction:** Maternal obesity is known to increase obstetric and anaesthetic risk. In our unit women with a booking BMI ≥40 are referred to the obstetric anaesthetic high risk clinic for counselling and are given the OAA high BMI leaflet. We conducted an audit to see what the obstetric and anaesthetic outcomes were for these women and whether they were comparable to those published in the recent CMACE report.

**Method:** The notes of all women with a BMI ≥40 seen in the high risk clinic between January 2009 and December 2010 were analysed for a range of outcomes, including regional analgesia rate for labour, depth of epidural space, number of attempts required to site the epidural, mode of delivery, co-morbidity and incidence of major postpartum haemorrhage (PPH) (blood loss >1000ml). National data for these outcomes was compared with those from the CMACE report.

**Results:** Forty-four women (representing 0.4% of the deliveries occurring during the audit period) were seen in clinic and 41 case notes were available for review. The average BMI of the study group was 44 (range 40-63) and included 15 multiparous and 26 nulliparous women.

Table 1: Regional analgesia for labour

<table>
<thead>
<tr>
<th></th>
<th>BMI ≥40 group</th>
<th>All women%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall rate</td>
<td>67%</td>
<td>55%</td>
</tr>
<tr>
<td>Nulliparous women</td>
<td>75%</td>
<td>62%</td>
</tr>
<tr>
<td>Multiparous women</td>
<td>44%</td>
<td>46%</td>
</tr>
</tbody>
</table>

* average background regional rate during the audit period

The median depth of the epidural space was 8cm (range 5.5-11cm) and 43% of sites required ≥ 2 passes. Sixty-six percent of women delivered vaginally, 20% by elective caesarean section (CS) and 34% underwent a category I-III CS. This compares with 59%, 18% and 23% respectively from the national data. The most common co-morbidities in our group were hypertensive disorders (20%), asthma (12%) and diabetes (5%). There was one major PPH among the 41 women.

**Conclusions:** Our regional analgesia rate for morbidly obese women is higher than our background rate. This may reflect the advice given in clinic to consider an early epidural. The modes of delivery for these women are comparable to national data. Although our numbers are small there is a trend towards more vaginal births and less caesarean sections than the national average. Of note, a calculated 0.4% incidence of women with a BMI ≥40 (vs a national incidence of 2%) suggests that the majority of these high risk women are still not receiving counselling in our anaesthetic clinic. We must therefore improve our referral mechanisms. We also plan to make BMI a required data field on the electronic patient record to facilitate future audits.

**Reference**

P107 A new technique for labour analgesia - our experience of remifentanil patient controlled analgesia

A Sinclair, J L Robertson, C Johnstone
Department of Obstetric Anaesthesia, Crosshouse Hospital, Kilmarnock, UK

Introduction: Remifentanil patient controlled analgesia (PCA) has been shown to be a safe and effective form of analgesia during labour. Following the introduction of the technique at our hospital, we aimed to confirm its safety and efficacy and assess patient demand.

Methods: Information was collected on all patients receiving remifentanil PCA from January to December 2009. We recorded indication, duration of use, technique for delivery, duration of labour, mode of delivery, Apgar scores and complications. Patients recorded pain and satisfaction scores using visual analogue scales or were contacted by telephone and asked for scores on a corresponding numerical scale.

Results: Data was collected for 77 patients. Indications for remifentanil PCA use are shown in the table. Mean duration of use was 4 h 37 min. 46 (60%) patients used remifentanil for analgesia at delivery. Mean durations of each stage of labour were 4 h 10 min, 1 h 12 min and 10 min for stages 1-3 respectively. Modes of delivery were SVD 44 (58%), caesarian section 18 (24%) and instrumental 14 (18%). Median Apgar scores were 9 at 1 minute and 10 at 5 minutes. Complications recorded were desaturation (SpO2 <94% on air) 36 (47%), nausea 9 (12%), vomiting 3 (4%), itch 2 (3%) and conversion to epidural 6 (16%). Median pain scores were 58mm for labour and 71mm for delivery. Median satisfaction score was 82mm.

<table>
<thead>
<tr>
<th>Indication for PCA use</th>
<th>Number of patients</th>
<th>Percentage of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient preference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Intrauterine death</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Spinal abnormality</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Unable to site epidural</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

Conclusions: Remifentanil PCA is attractive to our patients and can be used for the duration of labour and delivery. Patient satisfaction is encouraging and epidural conversion rates are low. Desaturation is common raising the question of routine oxygen administration.

Reference

P108 How to proceed following failed neuraxial anaesthesia for caesarean section? A survey of consultant obstetric anaesthetists

MA Broom, S Young
Anaesthesia, Princess Royal Maternity, Glasgow, UK

If failure of neuraxial anaesthesia is recognised before caesarean section begins, the anaesthetist faces a dilemma: repeating a neuraxial technique may carry extra risk and selecting drug doses may be difficult but this may still be considered preferable to general anaesthesia. There is no strong guiding evidence base. I wished to ascertain consensus, or otherwise, amongst obstetric anaesthetists faced with such scenarios.

Methods: I asked 16 consultant obstetric anaesthetists from 2 large Glasgow maternity units, to describe their rescue anaesthesia technique for 4 scenarios (referring to ASA 1 prim, uneventful pregnancy, straightforward airway): 1) Large volume epidural top-up for cat 2 LSCS, Can't straight leg raise, can bend knees, blocked to cold bilaterally to T10. 2) same scenario with block to T6. 3) Spinal for cat 4 LSCS 2.5mls 0.5% heavy Markain + 0.3mg diamorphine. CSF aspirated throughout injection. Can't straight leg raise, can bend knees, blocked to cold bilaterally to T10. 4) same scenario with block to T6.

Results: Table shows number choosing each option for scenarios 1-4. Mean(SD) doses are 0.5% heavy Marcain.

<table>
<thead>
<tr>
<th>Anaesthetic option</th>
<th>Sc 1</th>
<th>Sc 2</th>
<th>Sc 3</th>
<th>Sc 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeat spinal</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>(2.3mls)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower dose spinal</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mean(SD) mls</td>
<td>1.9(0.2)</td>
<td>1.9(0.2)</td>
<td>1.7(0.4)</td>
<td>1.5(0.5)</td>
</tr>
<tr>
<td>Higher dose spinal</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mean(SD) mls</td>
<td></td>
<td></td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>CSE</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mean(SD) mls</td>
<td></td>
<td></td>
<td>1.0</td>
<td>1.8(0.6)</td>
</tr>
<tr>
<td>Epidural and titrate</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General anaesthetic</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Start operation</td>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion: There was little consensus amongst consultants and most found these scenarios challenging. Some had persuasive arguments for particular courses of action: For scenarios 1 and 2 (ASA1 patient with a straightforward airway), one consultant thought repeating a neuraxial technique on a partially anaesthetised patient to deliver a “guess” dose of drug was indefensible. The vast majority however would repeat a neuraxial technique. For scenarios 3 and 4, another consultant felt that if a spinal was to be repeated the logical course was to use a higher dose than before (allowing adequate time for previous anaesthetic to fix). The majority in these scenarios opted for normal or lower dose spinal.

Conclusions: There is little consensus or evidence about the best course of action if a neuraxial anaesthetic fails. Every situation is uniquely nuanced and perhaps almost any clinically justifiable course of action may be considered acceptable in such difficult situations. Trainees would be advised to discuss options with their consultants.
**P109 Light touch - How do you do it? An observational study of practice**

AJ Brewer, R Leighton  
*Department of Anaesthesia, University Hospitals of Leicester, Leicester, UK*

**Introduction:** Assessment of sensory level using light touch is essential prior to commencement of caesarean section under regional blockade. Different methods exist to measure light touch and these have not been evaluated for reproducibility.

**Methods:** 22 anaesthetists were recruited and asked if they routinely checked light touch prior to commencement of surgery. They were invited to demonstrate this on a set of scales, with the measurements concealed. This was recorded and then analysed to determine the maximum pressure applied by each method of assessing light touch.

**Results:** Of the 22 participants 50% did routinely check light touch prior to commencement of surgery, 4 using gauze, 1 cotton wool, 4 used their or the mother’s finger, 1 a standardised 10g filament and 1 ethyl chloride.

Graph 1: Pressure Applied using different modalities. One errant measurement, 1.2N using the finger, was removed from the analysis. The mean pressure applied using the finger was 0.11N, SD of 0.09N. Using cotton wool the mean pressure applied was 0.07N, SD of 0.07N and using gauze mean pressure applied was 0.05N, SD of 0.04N.

**Discussion:** In this group of anaesthetists sensory level assessment to light touch is still not always tested routinely, and when it is tested it is performed by varying modalities. Marked differences between operators and modalities existed. Whilst not statistically significant our results suggest that the modalities may not deliver comparable pressures. We intend to investigate this further.

**References**

1. Russell I. At caesarean section under regional anaesthesia it is essential to test sensory block with light touch before allowing surgery to start Int J Obst Anaesth 2006;15(4):294–297

**P110 Management of emergency and elective caesarean sections at a district general hospital. Reducing morbidity according to NICE guidelines**

YM Liu, N Dobby, E Fajemirokun  
*Anaesthesia, North Middlesex Hospital, London, UK*

**Introduction:** NICE guidelines clearly state that a reduction in morbidity for obstetric patients undergoing lower segment caesarean sections (LSCS) can be achieved through regional anaesthesia, antibiotics, deep vein thrombosis (DVT) prophylaxis and the prescription of premedications such as antacids and antiemetics. We decided to evaluate current anaesthetic management of LSCS in our hospital, focusing on these key points which are known to decrease morbidity.

**Methods:** The case notes of 40 obstetric patients who underwent either elective or emergency LSCS were reviewed retrospectively. The presence of 4 key management points considered most important in the provision of safe obstetric anaesthesia were assessed for. These points included prescription/administration of premedications for protection against aspiration, DVT prophylaxis and antibiotic prophylaxis. We also looked for documentation of category of LSCS for each patient. We used this information to assess whether regional anaesthesia was being offered to all appropriate women as the preferred method of anaesthesia. These measures are deemed fairly simple and should be standard treatment, we therefore expected a target of 100% for each of these points to be achieved.

**Results:** From the 4 key points, a score of 100% achievement was not fulfilled for any point. 21% of patients had no documented premedication. 10% of this group of women did not receive DVT prophylaxis despite their increased risks and 4% did not receive antibiotic prophylaxis. The category of caesarean section was recorded in 0% of the notes making it impossible to assess whether the patients were receiving either regional or general anaesthesia appropriate to their caesarean section category.

**Conclusions:** The most recent CEMACH report highlighted that 2 of the top 3 direct causes of maternal deaths were thromboembolic events and maternal sepsis. From the audit it is clear we were not achieving NICE guideline standards for reducing morbidity and improving safety. NICE also states that clear local guidelines improves care in this group of patients. We were unable to find specific guidelines for DVT and antibiotic prophylaxis in our local labour ward guidelines. This audit has prompted a review of local guidelines, renewed emphasis on the importance of good documentation and a change to the anaesthetic pre-assessment form. A pre and post operative tick box checklist added to the anesthetic pre-assessment form was one of the options which would ensure that premedications, antibiotics and thromboembolic drugs would be given to every patient.

**References**

P111 Implementation of the WHO obstetric checklist - modified with five key/star points: a completed audit cycle

NA Joshi, L Jordan
Department of Anaesthesia, Royal United Hospital, Bath, UK

Introduction: The WHO Surgical Safety Checklist is a core set of checks, to reduce adverse events and improve patient safety in the intra-operative period. Comprehensive implementation has been associated with dramatically improved patient outcomes. The WHO checklist has been mandatory in the NHS, for all surgical procedures since February 2010. To address specific patient safety issues, we realised that a modified version was required for obstetrics. Our checklist highlights five key/star points in the ‘time-out’ that must be considered before commencing surgery: (confirm patient identity/procedure/consent, anaesthesia safety check, acid aspiration prophylaxis, patient allergies, surgical equipment check and key concerns). These five points were specifically designed for category one cases. Our modified checklist was implemented in September 2010.

Methods: To assess compliance and ensure reliable implementation, we conducted monthly audits, with spot data collection and instant implementation of interventions to produce faster reliable change. Compliance with completion of all components of the checklist was assessed. Data was also collected on the procedure and urgency of the case. Following the first month’s results, change was instituted with further multi-disciplinary team education, a poster highlighting the five key points, (displayed in theatre) and easier access to blank checklists for completion. In the second month we concentrated on emergency procedures, where checklist implementation was less reliable.

Results: In the initial audit, 73.3% (11/15) were emergency cases, compared with 94.7% (18/19) in the re-audit. Results are shown in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Initial Audit</th>
<th>Re-Audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checklist present (%)</td>
<td>60.0</td>
<td>78.9</td>
</tr>
<tr>
<td>Pre-operative brief (%)</td>
<td>46.6</td>
<td>36.8</td>
</tr>
<tr>
<td>Sign-In (%)</td>
<td>46.6</td>
<td>52.6</td>
</tr>
<tr>
<td>Time-Out (%)</td>
<td>53.3</td>
<td>89.4</td>
</tr>
<tr>
<td>Sign-Out (%)</td>
<td>40.0</td>
<td>68.4</td>
</tr>
</tbody>
</table>

Discussion: We have demonstrated improvement in compliance with our obstetric checklist for emergency cases. Compliance was greater for the ‘sign-in’, ‘time-out’ and ‘sign-out’, but reduced for the ‘pre-operative brief’. This is due to analysis of emergency cases in the re-audit, when the pre-operative brief is not performed and the five star points are performed. (combination of ‘sign in’ and ‘time out’). Since the introduction of our WHO obstetric checklist, the NPSA has issued a WHO checklist for maternity. This does not include specific adaptations for category one caesarean sections. We therefore believe our five ‘stars’ are an improvement on the and have demonstrated that they increase compliance in emergency cases, hopefully minimising adverse events.

References

P112 World Health Organisation surgical safety checklist - variation in completion with clinical urgency and time of day

D Soltanifar, L Wee
Department of Anaesthetics, University College London Hospital, London, UK

Introduction: The World Health Organisation (WHO) introduced a surgical safety checklist as part of the “Safe Surgery Saves Lives” campaign in 2008. From February 2010 all surgical procedures should have the checklist completed at 3 stages of the operation: sign in, time out and sign out. Effective adoption of the checklist leads to better teamwork and patient safety and this has been shown to reduce morbidity and mortality of patients undergoing surgery. We audited completion of the checklist in our obstetric unit looking for variations which may be related to clinical urgency or timing of the case.

Methods: Over a 1 month period in Nov-Dec 2010, completion of the WHO safety checklist for patients undergoing all surgical procedures in the obstetric unit in our institution was evaluated retrospectively by a single anaesthetist not directly involved in the care of the patients. For each case, completion of all 3 stages of the checklist was recorded, along with time of day and urgency of the case.

Results: Audit forms were completed for 75 cases and the results shown in the table.

<table>
<thead>
<tr>
<th></th>
<th>Fully completed checklist</th>
<th>Incomplete checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective cases (n=33)</td>
<td>16 (48%)</td>
<td>17 (52%)</td>
</tr>
<tr>
<td>Emergency cases(n=42)</td>
<td>0 (0%)</td>
<td>42 (100%)</td>
</tr>
<tr>
<td>Daytime cases(n=40)</td>
<td>16 (40%)</td>
<td>24 (60%)</td>
</tr>
<tr>
<td>Out of hours cases (n=35)</td>
<td>0 (0%)</td>
<td>35 (100%)</td>
</tr>
</tbody>
</table>

The overall compliance rate with full completion of the checklist was 21% (16/75). All 16 completed checklists were from elective cases performed during daytime hours. None of the cases performed as emergencies or out of hours achieved a completion.

Conclusion: Full compliance with the WHO checklist in our unit was poor during the audit period. One implication is that the full checklist is too cumbersome for obstetric emergency cases and simplification of the process may improve compliance.

Trainees are involved in most of the emergency cases occurring out of hours which is a time when the potential for mistakes may be higher such that ensuring good compliance with the checklist may help to reduce adverse events. A period of training with particular focus on trainees’ use of the checklist may be appropriate.

We plan to re-audit our compliance with the checklist.

Reference
P113 Caesarean section prescription of antibiotic and thromboprophylaxis-completing the audit cycle.

P Morris, J Smith, J Halshaw
Anaesthesia, Royal Victoria Infirmary, Newcastle upon Tyne, UK

Introduction: Thromboembolism remains the leading direct cause of maternal mortality in the UK. 1 Additional risks include increasing age, obesity and caesarean section (emergency>elective). 2, 3 The Royal College of Obstetricians and Gynaecologists published guidelines in 2009 which have been used in our unit to develop a protocol for antibiotic and thromboprophylaxis after caesarean delivery. 3 This audit examines our compliance with our protocol. An initial audit confirmed good compliance; however dosage prescriptions of low molecular weight heparin (LMWH) had potential for improvement. Following changes including routine use of the WHO surgical safety checklist, posters in theatre displaying dosage guidelines and encouragement by the obstetric team confirming correct drug administration and prescription, a repeat audit was completed.

Method: Emergency and elective caesarean section medical records were reviewed retrospectively completing a proforma for 2 separate month audit periods 6 months apart. Information recorded included antibiotic and LMWH prophylaxis documentation on the drug kardex and anaesthetic record; in addition to whether the correct booking weight adjusted LMWH dose had been prescribed.

Results: In the initial audit 141 caesarean sections were performed and all medical records reviewed. During the re-audit period there were 150 caesarean sections, however 3 medical records were missing. The division of elective and emergency cases was similar in both audit periods.

Results of prescribed drugs in %

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Initial-elective</th>
<th>Re-audit-elective</th>
<th>Initial-emerg</th>
<th>Re-audit-emerg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>97</td>
<td>100</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>LMWH</td>
<td>97</td>
<td>95</td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td>Regular</td>
<td>97</td>
<td>100</td>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>LMWH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct dose</td>
<td>94</td>
<td>84</td>
<td>90</td>
<td>86</td>
</tr>
</tbody>
</table>

Discussion: Antibiotic prescription remains excellent. However, despite these changes there remain concerns with LMWH prescribing. In our re-audit 2 emergency patients had no postoperative LMWH. The correct weight adjusted dose of LMWH prescribed has remained similar; interestingly of those with incorrect doses, 75% were too high. There is still room for improvement in our busy unit; we suggest the timeout WHO checklist could confirm correct prophylaxis prescription, and again by the midwife prior to discharge to the ward.

References

P114 Hypothermia and elective caesarean section - service evaluation and survey of practice in East Anglia

S Advan thaya, R Dumpala, A Banerjee, SD Petkov, JA Pickett
Anaesthesia, Addenbrooke's Hospital, Cambridge, UK

Introduction: NICE guidelines highlight adverse effects of inadvertent perioperative hypothermia (temperature < 36°C) and stress the importance of active warming. 1 Although parturients are excluded from these guidelines, use of warmed intravenous fluids during elective caesarean section has been advocated. 2 We wished to ascertain current practice for prevention of maternal hypothermia during elective caesarean section in our institution, and its effectiveness. We also wished to survey comparable practices throughout the East Anglian region.

Methods: After approval we performed a prospective service evaluation of perioperative temperature management during elective caesarean section over 2 months. Anaesthetists adhered to their usual practice. Maternal core temperature was measured on arrival in the anaesthetic room and on arrival in recovery using an infrared tympanic thermometer (Thermoscan, Braun). Data was also collected for type of anaesthetic, use of warmed intravenous fluids and use of forced air warming. Later we surveyed all lead obstetric anaesthetists within East Anglia via e-mail and asked about unit guidelines for perioperative hypothermia prevention in general and specific to obstetrics, fluid warming practices, availability of inline fluid warming devices and also of warming cabinets.

Results: Data was collected for 55 patients. One received general anaesthesia. Ten patients (18%) received warmed intravenous fluids (40.5°C in a warming cabinet). None had forced air warming. Mean patient temperature in the anaesthetic room was 36.9°C compared to 36.4°C on arrival in recovery. Six patients (11%) had temperatures < 36°C on arrival in recovery. Fourteen units (82%) out of 17 in East Anglia responded to our survey. Six of these (43%) had temperature management guidelines, although none specifically related to obstetrics. Fourteen units (100%) had inline fluid warmers and 7 (50%) had warming cabinets. Five units (36%) routinely used warmed fluids for elective obstetric surgery.

Discussion: We established that intraoperative fluid warming during elective caesarean section is not routinely practised in our hospital and in our evaluation 11% of patients were hypothermic by the end. Our intention is to raise awareness by presenting at departmental audit and to review policy. Active temperature management is however practised by at least 29% of units in East Anglia. In comparison, a survey of obstetric units in the UK showed that only 16% warmed routinely for elective surgery. 3

References
P115 A prospective audit of airway and intubation problems during general anaesthesia for caesarean section

G Timms, V Bythell,*
Anaesthesia, Northern Deanery, Newcastle upon Tyne, UK,
*Anaesthesia, Royal Victoria Infirmary, Newcastle upon Tyne, UK

Introduction: General anaesthesia (GA) for caesarean section (CS) is decreasing and opportunities for management by experienced staff during daytime hours are rare. The 2000-2003 Confidential Enquiry into Maternal deaths reported that in cases of morbid obesity, management by a consultant anaesthetist was essential. The objectives were to identify the incidence of difficult intubation, the number of cases used for teaching, and the presence of consultants with the management of super-obese patients.

Methods: The proposed standards included: difficult intubation should be no greater than 1:30, and 100% GA for elective CS should be used for teaching. Prior to the publication of the 2010 obesity in pregnancy guidelines, we elected that a consultant should be present for 100% of patients with a body mass index (BMI) >45kg/m² at booking, undergoing a GA. Individual anaesthetists self-reported: the grade of laryngoscopy, the ease of intubation, the occurrence of teaching, and the BMI. Stored data had no identifying features.

Results: Between 20th October 2009 and 28th February 2010, 61 CS were performed under GA. Of these 43/61 (70.5%) were included, and 18/61 (29.5%) were discarded due to incomplete data. There were no failed intubations. Intubation was described as 'difficult' in 5/43 (11%). Of these, 3/5 required a bougie, 1/5 required a second anaesthetist, and 1/5 required repositioning. There were no adverse outcomes. Elective CS accounted for 12/43 cases and 6/12 (50%) were used for teaching, falling short of the recommended standard. One patient was super-obese, and the GA was performed by a trainee who reported difficulty inserting the laryngoscope, which was easily rectified by removal of a pillow.

Discussion: Difficult intubation can be defined as any intubation where the anaesthetist records it as difficult or has to use an intubating aid. However, not all intubations requiring a bougie are perceived as difficult, nor are those requiring a second anaesthetist, particularly when used as a teaching case. An elective and emergency theatre can frequently run concurrently, making direct supervision difficult, but non the less important. We are looking to improve consultant presence for the management of super-obese patients, but for this service would consultants have to be resident out of hours?

References

P116 Audit of general anaesthesia for caesarean section: documentation of failed regional anaesthesia

C Sandberg, N Berry, J Corfe
Anaesthetics, Norfolk and Norwich University Hospital, Norwich, UK

Introduction: The Royal College of Anaesthetists (RCoA) has set targets for best practice regarding acceptable rates of regional anaesthesia (RA) failure with consequent conversion to general anaesthesia (GA) (1). The efficacy and regional block of an existing epidural catheter should be assessed prior to its use for anaesthesia. Assessment of the quality of regional block prior to the commencement of surgery is mandatory on humanitarian and medicolegal grounds (2). These assessments must be clearly documented. Debate continues regarding the appropriate target dermatomal level and sensory modality for testing regional block prior to caesarean section (CS). Current consensus suggests that at least 2 sensory modalities (one being light touch), motor and sympathetic testing of the block are undertaken bilaterally.

Method: All patients receiving GA for CS were identified from the obstetric anaesthesia database for the period 01/01/09 to 31/12/09. 144 cases were identified. 120 sets of case notes were hand searched for details. In the 12 month period, 246 patients had an epidural catheter topped up with the intention of it being used for surgical anaesthesia for CS.

Results: 21/120 (1.75%) patients audits had failed regional anaesthesia as the cause for GA. 15/21 were related to epidural anaesthesia (conversion rate 15/246 = 6%) and 6/21 related to spinal anaesthesia. In 4/6 spinal cases the operator was unable to locate the intrathecal space. The remaining cases had block height documented but only one of these cases mentioned the modality of testing (i.e.). None of the epidural cases had any documentation of the dermatomal level or adequacy of the block prior to top up. 5/15 had no documentation of the block assessment post top up, prior to surgical incision. Of the 10 who did have some documentation it was incomplete with regard to bilateral testing, modality and level.

Conclusions: Documentation of regional block assessment prior to CS was poor and unstandardised in this group of patients for whom RA failed. Anaesthetists continue to use only ice for regional block assessment, this is contrary to current consensus opinion. Regional block assessment practices have been reviewed and clinicians updated. A combined anaesthetic record for epidural analgesia and subsequent anaesthesia is planned. Assessment of dermatomal level is known to be variable amongst anaesthetists, the new record will include a dermatomal diagram on which to annotate the block assessment. Litigation for pain during CS is more common than for non-obstetric surgery. Adherence to best practice and attention to documentation detail are especially important when using RA for CS.

References
2. Levy DM. Emergency Caesarean Section: Best Practice. Anaesthesia 2006; 61: 786-791
P17 Sodium citrate use in GA caesarean section: obstacles and solutions
MN Ravindran, E Evans
Anaesthetics, St. George’s Hospital NHS Trust, London, UK

Introduction: Pharmacological prophylaxis, increased usage of regional anaesthesia and improvements in general anesthesia safety have led to a reduction in incidence of gastric acid aspiration. Following redesign of obstetric theatres, we noticed that during training drills and clinical practice citrate use had declined. We set out to determine the reasons for this and what simple measures might improve compliance.

Method: Using our maternity unit database we reviewed anaesthetic sheets and drug charts of all parturients who underwent caesarean sections (elective and emergency) under general anesthesia (GA) during a 10 month period to ascertain the urgency of caesarean section and the types of antacid prophylaxis. To determine what was hindering citrate use we designed and distributed a paper questionnaire to all anaesthetists who covered obstetric theatres to determine current practice, obstacles to administration of sodium citrate, and to ask for suggestions to improve practice.

Results: 78 GA caesarean section notes were reviewed, four were excluded as there were no anaesthetic or drug charts. 52% were category 1 caesarean sections, 28% category 2, 13% category 3 and 17% category 4. 32% of parturients received sodium citrate prior to GA and 44% received only ranitidine and metoclopramide. Of the category 1 and 2 caesarean sections 26% received citrate as compared to 57% of the category 3 and 4 caesarean sections. A response rate of 71% (30/42) was achieved for the survey. During elective GA caesarean sections, 43% would use sodium citrate always, 43% sometimes, 3% rarely and 6% never used it. During emergency GA caesarean section, 83% would use citrate always and remaining would use it sometimes. 46% of anaesthetist had encountered difficulty in locating sodium citrate in theatre.

Discussion: The administration of sodium citrate prior to GA for caesarean sections was much less than expected. This may be partly due to lack of documentation in the anaesthetic notes, made more likely through use of a non-obstetric specific chart, but our work highlighted urgency of caesarean section and poor accessibility as major causes. Keeping sodium citrate with GA caesarean section pre-prepared drugs is one way of providing a prompt to clinicians along with redesign of the anaesthetic chart for obstetric practice. The stability of 0.3M sodium citrate, when stored 2-8°C for a week, was confirmed by Viridiana Pharma the manufacturers of this drug in the UK (personal communication). We plan to store sodium citrate with pre-prepared drugs for GA in the fridge. redesign the anaesthetic chart and perform simulated drills to reinforce the administration of antacid prophylaxis prior to GA caesarean sections. We plan to re-audit use of sodium citrate following these changes.

Reference
1. Paranthoy S, Griffiths JD, Broughton HK et al. Interventions at caesarean section for reducing the risk of aspiration pneumonia. Cochrane Database of systematic review 2010; Issue 1, Art. No.: CD004943

P18 Assessment of training and use of a modified obstetric early warning score (MEOWS) chart prior to implementation
N Patel, L Menadue, H Mulchantdani, E Hill, R Khan, C Sadler
Maternity Department, Barts & the London, London, UK

Introduction: In line with CEMACH recommendations we developed a MEOWS chart for introduction into clinical practice. We investigated whether MEOWS influenced clinical judgement of severity of illness, and after training assessed ability to calculate MEOWS and ability to select recommended actions.

Methods: 6 paper-based clinical scenarios were designed such that 2 fell into each of the 3 possible MEOWS recommended action pathways: (1) routine observations, (2) 2h to 3h observations and (3) senior review within 30mins. Before introducing the MEOWS chart maternity staff were given 3 scenarios each and asked: (a) to mark on a visual analogue scale (0-10) the severity of illness (b) how quickly they wanted help to attend and (c) how frequently they wanted subsequent observations. Following MEOWS training, participants calculated MEOWS for the same scenarios and then answered the same 3 questions.

Results: 58 staff participated (45 midwives, 8 obstetricians, 5 anaesthetists). 73% of all calculated MEOWS were correct but significantly fewer were correct in pathway 3 compared with pathway 1.

Table

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Pre-Training VAS (mean)</th>
<th>Post-Training VAS (mean)</th>
<th>Next Obs Pre-MEOWS (%correct)</th>
<th>Next Obs Post-MEOWS (% correct)</th>
<th>MEOWS (% correct)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.62</td>
<td>4.13*</td>
<td>0</td>
<td>20</td>
<td>87%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(100% too infrequent)</td>
<td>(80% too frequent)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6.53</td>
<td>5.18*</td>
<td>0</td>
<td>47</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(100% too frequent)</td>
<td>(36% too frequent)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8.45</td>
<td>8.31</td>
<td>98</td>
<td>85</td>
<td>55%</td>
</tr>
</tbody>
</table>

*p<0.05 paired t-test pre v post training
€p<0.05 unpaired t-test MEOWS calculation pathway 1 v 3

55% pre- and 23% post-training for pathway 1, and 77% pre- and 49% post-training for pathway 2 incorrectly requested review within 30mins. 96% of participants correctly asked for review of patients in pathway 3 within 30mins pre-MEOWS and 89% post-MEOWS (p=0.14).

Discussion: Despite training, 27% of MEOWS were calculated incorrectly: this was significantly worse in patients with highest MEOWS. Pre-MEOWS, severity of illness was thought to be significantly greater for the two least sick patient groups and observations were requested more frequently than required. Using MEOWS led to reduced inappropriate requests for senior review and an improvement in correct timing of observations in the least sick patients. In the sickest patients, calculating MEOWS did not have a significant influence on clinical judgment of severity of illness, but it did cause a small non-significant fall in timely senior referral and correct timing of observations. Care is required when implementing MEOWS to ensure the intended benefits are realised. Modification of the chart and training maybe required.

Reference
P119 Improving compliance with recording of maternity vital signs and early warning scores
J Nariani, A Bewlay, A Waite
Department of Anaesthesia, Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK

Introduction: Poor postoperative care is a contributory factor for maternal deaths. The importance of postoperative monitoring has been emphasised in the confidential enquiry. There are NICE guidelines for monitoring after caesarean sections.

Modified Obstetrics Early Warning System (MEOWS) chart was introduced to our hospital in 2004. Subsequently in 2009 it was adapted into a standard trust document for monitoring of vital signs. A teaching programme was undertaken followed by a snap shot audit.

Method: In order to see if observations were undertaken as per protocol we audited the data from the charts of all the patients on the maternity ward on a predetermined day. We checked if early warning scores (EWS) were recorded for each set of observations. If the score was more than 3 we checked if appropriate action had been taken.

Results:

<table>
<thead>
<tr>
<th>LSCS (%)</th>
<th>Regional elective</th>
<th>Regional, emergency</th>
<th>GA, elective</th>
<th>GA, emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 mins</td>
<td>3/4 (75)</td>
<td>9/10 (90)</td>
<td>1/1 (100)</td>
<td>2/4 (50)</td>
</tr>
<tr>
<td>30 mins</td>
<td>3/4 (75)</td>
<td>10/10 (100)</td>
<td>1/1 (100)</td>
<td>2/4 (50)</td>
</tr>
<tr>
<td>1 hour</td>
<td>0/4 (0)</td>
<td>6/10 (60)</td>
<td>0/1 (0)</td>
<td>2/4 (50)</td>
</tr>
<tr>
<td>4 hour</td>
<td>0/3 (0)</td>
<td>1/7 (14.3)</td>
<td>0/1 (0)</td>
<td>2/3 (66.6)</td>
</tr>
</tbody>
</table>

Normal vaginal delivery/instrumental delivery

| 15 mins  | 2/10 (20)        | 1 hour             | 1/10 (10)   |

Table: Number of patients who had the observations recorded as per protocol

Data was available from 40 patients. EWS were documented in 21/40 (52.5%). 11 patients had scores of more than 3, appropriate action was taken in 7/11 (63.6%) cases.

Discussion: Compared with previous years there has been an improvement, though there is room for further improvement.

To achieve this we are having regular anaesthetist led teaching not only for the midwives but also for the health care assistants. These study days have been found to be extremely useful by our staff. In their feedback, 97% of the midwives found it to be good or excellent.

To support this practical teaching, we intend to implement a “E-Learning” module.

Other useful outcomes from this audit were the alteration in the layout of the charts and a change in the frequency of monitoring after normal and instrumental deliveries.

References

P120 A survey of chronic pain service provision for post partum women in maternity units of Scotland.
R Marla, J M Dolan, S Young
Department of Anaesthesia, Glasgow Royal Infirmary, Glasgow, UK

Introduction: Chronic pain after caesarean section has been a topic of much interest recently. 2 Scandinavian studies described an incidence of 18% and 18.6% respectively. The authors also concluded that chronic pain was more common after caesarean section than after vaginal birth (10%). There is little information about the incidence of chronic pain in the post obstetric population in the UK. We did a survey of the lead Obstetric anaesthetists of the various maternity units in Scotland to assess their experience with this yet unrecognised population of patients.

Methods: We identified 12 large maternity units of Scotland and invited their lead Obstetric anaesthetists, or their deputy to participate; either by e-mail or on the telephone; using a standardised questionnaire.

Results: All 12 respondents agreed that chronic pain should be defined as “pain persisting for more than 3 months”. 11/12 had never been involved in the care of such patients 0/12 had any existing protocols or formal service provisions for this group of patients. 9/12 could not quote an estimated incidence of chronic pain after caesarean section; the 3 that did, estimated it between 8-12%. 0/12 referred to it during their process of consent or altered their anaesthetic technique to reduce its incidence in their patients. 1/12 units had a nominated anaesthetist for referral of such patients. He estimated reviewing around 4 patients annually. 10/12 felt these patients should be referred to the Chronic pain consultants.

Discussion: The results of our survey clearly show that there is paucity of awareness and experience about post obstetric chronic pain amongst the obstetric anaesthetists in Scotland. It might be that obstetric anaesthetists are not involved in the referral pathways of these patients; or that the incidence of chronic pain in this subset of patients here is not as high as the published studies state; or more worryingly; chronic post obstetric pain is under recognised in Scotland. More research needs to be done in this area to truly understand the extent of this problem in Scotland.

References
P121 Analgesic requirements in post partum women at the time of discharge

R Marla, J M Dolan, S Young
Department of Anaesthesia, Glasgow Royal Infirmary, Glasgow, UK

Introduction: There is emerging interest in pain issues affecting post-partum women. We decided to look at discharge analgesia as a surrogate marker of persisting pain in this population.

Methods: This was a retrospective analysis of anonymised data from the hospital (Princess Royal Maternity, Glasgow) database covering a period of 6 months in 2009-2010. Significant variables were identified using chi-square and Fischer's exact test. These were then subjected to multivariate logistic regression analysis to identify individual variables of significance.

Results: Using p<0.05, the following variables were found to be significantly associated with less discharge analgesia.

1. multiparity
2. current smoking habits
3. SVD
4. Unemployment
5. short (<8 hours) labour

Caesarean section was associated with highest levels of discharge analgesia. Socioeconomic deprivation and use of opioids in labour were non significant.

After multivariate logistic regression analysis, the following remained independently significant for increased analgesic requirement:

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
<th>Odds ratio (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS delivery</td>
<td>0.000</td>
<td>3.076 (2.77-3.44)</td>
</tr>
<tr>
<td>Presence of epidural</td>
<td>0.001</td>
<td>1.907 (1.312-2.779)</td>
</tr>
<tr>
<td>Non/ex smoker</td>
<td>0.014</td>
<td>1.328 (1.059-1.665)</td>
</tr>
</tbody>
</table>

Conclusion: Patients undergoing caesarean section are 3 times more likely to be discharged home with analgesics than non CS patients; with only 10% of women with SVDs needing the same.

Interestingly, having an epidural during labour approximately doubled the chances of receiving discharge analgesia. These patients possibly have more difficult labours; or have a different attitude or threshold to pain. These are mere speculations on our part and need more research to be validated.

The surprising outcome of the study was the lower incidence of discharge analgesia amongst current smokers, as smoking has usually been associated with higher pain scores and increased analgesic consumption. One reason could be smaller babies in smokers- a variable not included in this study. More research needs to be conducted to understand this contradictory result.

Reference


P122 Audit of compliance with post-operative analgesic prescriptions after caesarean sections

NM Canchi, A Barry, M Ilchysyn, G O'Sullivan
Department of Anaesthetics, Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction: Providing good post-operative analgesia after caesarean section (CS) is vital for a mother's recovery and for her timely discharge from hospital. Whilst anaesthetists routinely prescribe post-operative analgesia, the actual compliance with these prescriptions is variable. NICE has released guidelines for analgesia after CS. The aim of our audit was to evaluate if mothers received the prescribed post-operative analgesics and to establish their efficacy.

Method: The anaesthetist performing the daily follow-up ward rounds completed the audit forms. The information collected included details of the anaesthetic technique used for the CS, the appropriateness of the prescribed post-operative analgesia, midwife compliance with these prescriptions, worst visual analogue pain score (VAS) in previous 24 hours, mothers' perception of the adequacy of the prescribed medication and her overall level of satisfaction.

Results: A total of 35 patients were followed-up during the period of audit. Neuraxial opioids were used during every CS, with the aim of enhancing post-operative analgesia. While 87% of the anaesthetists prescribed regular analgesia, it was noted that only 75% prescribed adequate and appropriate rescue analgesics. Unfortunately more than 40% of our mothers felt that their post CS analgesia was not adequate and the VAS pain scores showed that only 21% of our patients had a VAS score of less than 4. Some mothers were not aware that they could request supplementary analgesia. Of those mothers who did request extra analgesia 20% of these requests were refused by the midwife.

Conclusions: The careful prescription of post-operative analgesia does not ensure that mothers will receive these medications. Mothers need to be carefully informed about their post-operative analgesic prescriptions and that they can request extra pain medications. Midwives also need to be educated about the analgesic requirements of mothers following CS.

References


P123 Complex regional pain syndrome following protracted labour
AG Butchart, M Mathews, A Surendran
Department of Anaesthesia, Queen Elizabeth Hospital, King’s Lynn, UK

Obstetric nerve palsies are not uncommon and may affect a number of peripheral nerves, however, long term sequelae are fortunately rare.1 The development of a complex regional pain syndrome is an unusual complication of a labour-related neuropathy. We describe the case of a 28-year-old primigravida lady who experienced prolonged labour with continuous epidural analgesia. Delivery was achieved by forceps instrumentation in theatre under spinal anaesthesia. Post-operative recovery was unremarkable but for a persistent weakness and numbness of the left lower limb. Urgent MRI did not demonstrate causative pathology and the deficit was thought likely to be due to a common peroneal nerve injury - later confirmed by nerve conduction studies.

Unfortunately, the neuropathy did not resolve as expected and by two weeks the patient had developed oedema, burning paraesthesia and allodynia affecting the left foot. These issues and the left foot drop made daily routines and caring for a new child a significant challenge. Treatment included gabapentin, ibuprofen and topical capsaicin cream as well as regular physiotherapy. After six months the foot drop had largely resolved and the chronic pain element was significantly diminished.

Patients experiencing obstetric nerve injury are often followed up in anaesthesia outpatients clinics. For patients in situations similar to that which we describe, early contact with pain specialists might be beneficial. A multimodal approach is important for the provision of optimal care.

Reference

P124 Does the dose of Codeine really matter?
S Cole, R Akhtar
Anaesthetics, University Hospital North Staffordshire, Stoke on Trent, UK

Introduction: The RCA’s proposed target of achieving effective post operative pain relief remains a challenge.1 To achieve this we adopted a multimodal approach to pain relief with intrathecal diamorphine and regular oral analgesics (NSAIDS-diclofenac 75mg bd, co-codamol 30/500 2 tablets qds). However after the incidences with codeine intoxication associated with ultrarapid CYP2D6 metabolism, breast feeding mothers were switched to co-codamol 8/500.2

Method: A prospective audit was carried out over 3 months. 174 parturients were identified who met the audit criteria "ASA I-2, regional diamorphine, caesarean delivery, no contraindication to NSAIDS". Data collection included regularity of administration of analgesia, relevant complications, severity of pain, morphine use and whether pain affected care of their baby.

Results: 150 patients received spinal anaesthesia and 24 had their epidurals topped up. 83.33% of all the patients received regular co-codamol while 51.72% received regular co-codamol and NSAIDS. 4% of mothers required morphine while severity of pain affected the care of baby in 9.2%. Within the breast feeding group (BF)(n=90) 71.11% described their pain as mild, 23.33% as moderate and 5.56% as severe. In the non breast feeding group(NBF)(n=84) 78.57% had mild pain, 17.85% moderate pain and 3.57% severe pain.

Conclusions: Pain scores were higher than guideline standards in both groups. In comparison the BF group had higher pain scores. Staff shortages contributed to delays in administering regular analgesia; this can be improved by patient self administered oral analgesia. However issues around the choices of analgesics available to breast feeding mothers still remain a challenge in the multidisciplinary setting.

References
P125 Pain relief after caesarean section
T C Poole, A Modi, N W Penfold
Anaesthesia, West Suffolk Hospital, Bury St Edmunds, UK

Introduction: We performed a prospective audit of pain relief after caesarean delivery, looking at prescribing, administration and patient satisfaction. We aimed to assess the efficacy of current prescribing and administration, and to evaluate maternal satisfaction with pain relief received after operative delivery. We also wanted to re-evaluate the use of potentially problematic and controversial agents, such as codeine and intrathecal dimorphine. Our audit coincided with the introduction of Depodur to our hospital, a potentially useful drug, since it is licensed for use in obstetric practice.

Method: We assessed every patient undergoing elective or emergency caesarean section in a one month period. We recorded what anaesthetic technique and dose they had received in theatre and what postoperative analgesia had been prescribed. These patients were then followed up daily until discharge and asked about pain at rest, on movement, nausea and vomiting, itch and constipation over the preceding 24 hours. All drug charts were reviewed for analgesic regime and administration compliance. Any medication omissions were correlated with changes in pain score.

Results: Our audit yielded interesting and somewhat unexpected results. For postoperative prescription, 88% of patients received the recommended postoperative analgesic regime. 71% of patients actually received the analgesics as prescribed. The average maximum pain score at rest was 2/10 and on movement 4/10, decreasing thereafter. 47% of patients required PRN oral morphine, in addition to regular paracetamol, diclofenac and codeine. The majority of patients required only one dose, 92% of these being within the first 24 hours. The majority of patients did not complain of nausea and vomiting but a significant proportion complained of mild to moderate postoperative itch.

Conclusion: We feel we achieve good analgesia in mothers undergoing caesarean section with our current analgesic regime. This is compromised when drugs are omitted, either for clinical reasons, due to patient refusal or in error. In our patient population, nausea and vomiting are well controlled, but itch can be problematic. We believe there is no role for Depodur in obstetric practice at our hospital at this time; this is because the current analgesic regime is adequate and because patients do not stay in for a sufficient period of time to be observed adequately after the administration of Depodur. As a result of this audit we have brought about a change in practice at our hospital. Firstly, we have replaced regular codeine with regular oral morphine in our postoperative analgesic regime and secondly we have introduced an algorithm for the management of postoperative itch with subcutaneous naloxone.

References

P126 Benefits of delayed removal of epidural catheter after caesarean section for grade-4 placenta praevia
Ajit Bhat, Andrew Bailey
Anaesthetics, Addenbrooke’s Hospital, Cambridge, UK

Introduction: Regional anaesthesia has been reported to be beneficial in the management of caesarean section (CS) in a hemodynamically stable patient with grade-4 placenta praevia. Combined spinal epidural (CSE) offers the added advantage of extending the duration of anaesthesia if needed. There is no consensus as to when to remove the epidural catheter after such a case. We present a case emphasising the benefits of delaying the removal of the epidural catheter at the end of the procedure.

Case report: A fit 40 year old multipara with a known grade-4 placenta praevia, who had undergone a previous CS, presented at 35 weeks gestation with vaginal bleeding. Two large bore intravenous cannulae were sited and urgent bloods were sent along with a request for six units crossmatch. When the patient bled again, it was decided to perform a category-2 CS. A cell saver and a rapid infuser were set up in anticipation of major blood loss. Anaesthetic and obstetric consultants were present. As the patient remained stable and had a strong desire to stay awake for the CS, a CSE was performed. The estimated blood loss during the surgery was 1000 ml. The epidural catheter was left in at the end of CS, 'just in case'. In the recovery, the patient bled another 1000 ml requiring return to theatre. The epidural was topped up incrementally achieving a good surgical anaesthesia. The patient bled a further 3000 ml inspite of uteoretic drugs and a B-Lynch suture along with a intra-uterine balloon placed. Appropriate blood and blood products were transfused. The patient remained awake and concious throughout. A low dose epidural infusion was started for post-op analgesia. The next morning, once the clotting screen came back as normal, the intra-uterine balloon was removed and the epidural catheter taken out few hours later in the absence of any more bleeding. The patient made a complete recovery and was discharged home on post-op day 4.

Discussion: This case underlines the importance of delaying removal of an epidural catheter after CS in a patient with high grade placenta praevia because of significant risk of return to theatre in the early post-op period. The epidural catheter can be safely removed once the patient is stable, the uterus remains well contracted with no evidence of more bleeding and clotting results are normal. In this case, the epidural allowed us to avoid a high risk general anaesthesia, provided good post-op analgesia and facilitated the tolerance of intra-uterine balloon.

References
P127 Drug errors in obstetric anaesthesia: a national survey

S Eason, U Misra
Anaesthetic department, Sunderland Royal Infirmary, Sunderland, UK

Introduction: Drug errors are of particular interest in obstetric anaesthesia owing to time pressured situations with multiple distractions leading to significant potential for error. We aim to determine any change in national practice with regards to reporting incidence and preventive measures compared to previous surveys.1,2

Methods: An OAA approved email survey was sent to all lead obstetric anaesthetists in the UK. Questions asked about incidence/outcome of drug errors and measures used to reduce them.

Results: A 71% response rate was achieved. The main reason for not using pre filled syringes is expense. The commonest error in last 5 years of the wrong drug given, is Thiopentone instead of antibiotic and vice versa.

Conclusion: There is little change for the better since 2003 regarding drug errors. White paper "building a safer NHS for patients" recommends that all intravenous drugs should be checked by two qualified practitioners, thus reducing error by up to 58%. Less respondents do this now than in 2003. The use of pre filled syringes has increased since 2003. They minimise potential for drug error, are sterile and reduce wastage. We recommend a prospective data collection of obstetric drug errors under the auspices of the OAA as the NPSA has failed to provide us with an accurate incidence of drug errors.

References

P128 Getting the numbers right. An investigation of clinical coding and data capture in a large maternity hospital

N Broughton, J Bamber
Department of Anaesthesia, Cambridge University Hospitals NHS Trust, Cambridge, UK

Introduction: Hospital statistics are used to measure clinical activity and consequently used for measuring and comparing quality of care, hospital reimbursement and business case planning for service development e.g. an obstetric high dependency unit. However these statistics may be collected and reported by a variety of hospital databases. There are national concerns about the quality of maternity data. We undertook an investigation of how statistics for maternity services activity in a large teaching hospital were collected and reported with specific reference to total deliveries and caesarean sections.

Methods: As part of a service evaluation we identified hospital database systems used to collect and report data for maternity care and theatre activity. We also sought information from staff responsible for entering data onto the database systems to understand the process of data entry as well as possible errors and limitations. We collated the total number of hospital deliveries and caesarean sections reported in the 2008/9 financial year by each database and compared these results.

Results: Data for the number of caesarean sections was recorded in three separate databases, HISS (Hospital Information Support System), Protos and TheatreMan, with total hospital births recorded by HISS and Protos only. Data was entered by different staff groups. Hospital coders only entered data into HISS. The Hospital Episode Statistics (HES) reported nationally are based upon HISS data. The number of caesarean sections was different in each database; Protos reported 1449, TheatreMan reported 1466, and 1459 were reported in HES. Protos reported 5402 hospital deliveries (caesarean rate 26.8%), whilst HES reported 5339 (27.3%). There are 6 possible OPCS-4 codes for caesarean section which may lead to data entry errors. The coding process is used to generate HRG-4 (Healthcare Resource Groups) codes which are used to obtain reimbursement for care.

Discussion: By using non-connected databases, our hospital is paying for different staff groups to enter duplicate data. Whilst the different data systems could be used to cross-check data for quality control, this does not occur routinely. The non-agreement between different database systems for simple coded activity such as caesarean section raises concern how more complex data such as complications and comorbidities can be captured with confidence. HES data is used by other agencies such as Dr Foster to compare care between hospitals.

Conclusion: Clinicians should take an interest in how clinical data is collected and reported and the methods of data quality assurance. There are particular concerns about maternity data quality. This data is currently used to compare quality of care nationally and for service development and reimbursement.

Reference
P129 How has the EWTD affected caseload and training
time in obstetric anaesthesia?
T Heinink, M Walters
Department of Anaesthesia, Royal Derby Hospital, Derby, UK

Introduction: The full implementation of the European Working Time Directive in August 2009 has reduced trainee's working hours. There are concerns that trainees may receive less experience in obstetric anaesthesia, particularly general anaesthesia1.

Methods: At the Royal Derby Hospital, data from the logbooks of trainees who underwent an intermediate obstetric training module were collected prospectively from 2007-2010, recording the number of procedures and consultant accompanied sessions on labour ward. Data were analysed using an unpaired Student's t-test to determine if any changes were statistically significant.

Results:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Caseload mean pre-EWTD</th>
<th>Caseload mean-post-EWTD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant sessions</td>
<td>20-68</td>
<td>20-50</td>
<td>0.66</td>
</tr>
<tr>
<td>GAs</td>
<td>6-10</td>
<td>4-11</td>
<td>0.53</td>
</tr>
<tr>
<td>Spinals</td>
<td>17-59</td>
<td>19-63</td>
<td>0.68</td>
</tr>
<tr>
<td>Epidural insertions</td>
<td>24-47</td>
<td>23-53</td>
<td>0.80</td>
</tr>
<tr>
<td>Epidural top-ups</td>
<td>4-16</td>
<td>11-25</td>
<td>0.14</td>
</tr>
<tr>
<td>CSEs</td>
<td>0-10</td>
<td>1-4</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Discussion: There was no statistically significant difference between trainees before and after the implementation of the EWTD with regards to the number of procedures and consultant accompanied sessions. The implementation of the EWTD does not appear to have reduced the experience and caseload trainees are receiving in obstetric anaesthesia at the Royal Derby Hospital. The number of combined spinal and epidural anaesthetics (CSE) performed are fewer than at other hospitals in the region (personal communication). In view of national concerns it is reassuring that all trainees have performed obstetric general anaesthesia during their training module. All trainees received the Royal College of Anaesthetists standard of a minimum of 20 accompanied sessions on labour ward2.

References

P130 Intrapartum fetal assessment: do obstetric anaesthetists know enough?
M Salmon, R Kumar, E James,*
Anesthetic department, Queen Mary's Hospital, Sidcup, UK
*Anaesthetic department, Addenbrooke's Hospital, Cambridge, UK

Introduction: Anaesthetists are part of a multi-professional team that provides care for parturients. In this setting where rapidly evolving clinical situations are frequently encountered, an appreciation of the degree of urgency is imperative for sound decision-making. It is thus essential that anaesthetists have adequate knowledge of intrapartum fetal assessment and of the resuscitative methods employed to promote fetal well-being in-utero, in compliance with the RCA guidance on competency-based training requirements.1

Methods: A questionnaire was designed and pre-piloted. An online survey was then created and the link was forwarded to anaesthetists of all grades. Questions were posed on the indices that suggest intrapartum fetal distress and on the methods of intrarutine fetal resuscitation. We also surveyed opinion on whether this topic should be included in the curriculum for the FRCA examination.

Results: 123 responses were received (20 consultants, 13 NCCGs and 90 trainees, all of whom provided cover on labour ward independently).

• 15% (19/123) correctly identified the normal range of baseline fetal heart rate (FHR),2 while 80% (98/123) were incorrect, and 5% (6/123) did not know.
• 54% (67/123) gave the correct value for fetal scalp pH that requires intervention,2 while 28% (34/123) were incorrect and 18% (22/123) did not know.
• 61% (74/123) claimed they were able to interpret cardiotocograph (CTG). Of this group, only 19% (14/74) knew the normal range of baseline FHR. Only 18% of all respondents (22/123) had received formal teaching on CTG interpretation.
• 12% (15/123) identified 5 or more features that render CTG abnormal,2 while 7% (9/123) did not know any. Fetal bradycardia was the most frequently quoted feature (65%, 80/123).
• 18% (22/123) identified 5 or more methods of intrarutine fetal resuscitation,3 while 9% (11/123) did not know any. Left lateral tilt was the most frequently quoted method (82%, 101/123).
• 66% (82/123) agreed that fetal assessment should be included in the FRCA curriculum.

Discussion: Our survey showed anaesthetists’ knowledge of intrapartum fetal assessment to be inadequate. Attendance of relevant courses such as the PROMPT™ course should thus be encouraged, and greater emphasis must be placed on the topic at teaching. Some anaesthetists expressed views that fetal assessment was of more relevance to obstetric practice. The majority, however, agreed it should be a component of the anaesthetic curriculum.

References
1. CCT in anaesthetics, http://www.rcoa.ac.uk/docs/CCTpitii.pdf
P131 Intraterine resuscitation: a survey of knowledge and audit of practice at a London teaching hospital

S J Hammond, R L Smith
Anaesthetics, St George’s, London, UK

Introduction: Acute foetal distress can result in significant neurological injury and death. Aids to diagnosis are characteristic changes in: foetal heart rate, ST segments and foetal scalp pH. Intraterine resuscitation techniques (IURT) are simple measures to improve placental blood flow and increase foetal oxygen delivery. Interventions include: maternal left lateral position, correction of maternal hypotension with fluids and vasopressors, avoindace of oxytoxics, use of tocolytics and delivery of maternal oxygen. We set out to establish knowledge of IURT amongst staff on our labour ward and observe the use of IURT for category 1 caesarean sections (CS) for foetal distress.

Methods: We performed a questionnaire based survey of awareness of IURT amongst midwives, obstetricians and anaesthetists working regularly on labour ward. This was followed by an observational audit of IURT employed for category 1 CS for foetal distress from January to April 2010.

Results: 41 questionnaires were completed: 17 (41%) midwives, 8 (20%) obstetricians and 16 (39%) anaesthetists. 33 (80%) listed foetal distress as an indication for IURT with the purpose being to optimise the foetus and increase placental blood flow as the most common responses. Respondents listed interventions as follows: left lateral positioning 27 (66%), maternal oxygen 21 (51%), intravenous fluids 26 (63%), vasopressors 6 (15%), discontinuing oxytoxics 19 (46%) and the use of tocolytics 15 (37%). There were a total of 29 category 1 CS for foetal distress, and interventions in progress were recorded based on where the anaesthetist first encountered the patient:

<table>
<thead>
<tr>
<th>IURT Intervention</th>
<th>Delivery Suite</th>
<th>Theatre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left lateral</td>
<td>8 (44)</td>
<td>9 (82)</td>
</tr>
<tr>
<td>Syntocinon off</td>
<td>13 (73)</td>
<td>11 (100)</td>
</tr>
<tr>
<td>Intravenous fluids</td>
<td>5 (28)</td>
<td>5 (45)</td>
</tr>
<tr>
<td>Tocolytics</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Oxygen</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Discussion: General anaesthesia was administered in 16 (54%) of the category 1 CS. Through improvements in placental blood flow and foetal oxygenation, IURT can reduce the urgency of delivery allowing more time for regional techniques and hence avoid the inherent risks of general anaesthesia. By refreshing awareness of IURT through multidisciplinary teaching and practise drills, we recommend the implementation of IURT should be a fundamental part of the management for foetal distress.

References

P132 Just managing - delivery without regional analgesia

DS Dugdale, M Chakravarti
Chase Farm Hospital Anaesthetics Department, Barnet & Chase Farm NHS Trust, London, UK

Introduction: Our unit is responsible for 3000 deliveries per annum (midwife-led unit 20-25%). Our epidural rate is 20% (national average 25%). We conducted a survey of women delivering vaginally without regional analgesia to explore the reasons underpinning their decision-making process.

Methods: A single anaesthetic investigator interviewed 50 women who delivered vaginally without regional analgesia. Data collected included parity, delivery location (labour ward v. midwife-led unit), source (if any) of antenatal information related to epidurals, intention to have an epidural and reasons for not receiving, or not wanting, an epidural.

Results: Of the 50 women surveyed, 21 were primiparous and 29 were multiparous. 30% of deliveries came from the midwife-led unit. 74% of women recalled receiving epidural information antenatally. The largest information providers were midwives (24 women) followed by friends and family (14 women). Other sources were National Childbirth Trust classes, the NHS Pregnancy Book and the Internet. Only 3 women received information from an anaesthetist. 6 women did not have an epidural contrary to their birthplan ("too little time" was the main reason stated). Concerns regarding epidurals were: paralysis (15 women), back pain (15), immobility (12), prolonged labour (10), painful insertion (8) and increased chance of caesarean section (5), failure (2) and PDPH (1). Other concerns stated were fear of not being able to sit still during insertion, not being able to push, not being in control and drugs affecting the baby. 18 women stated they would have, or consider having, an epidural for their next delivery.

Discussion: 26% of women had no recall of any antenatal analgesia information. The commonly quoted risks associated with regional analgesia of failure, hypotension, PDPH and neuropraxia appear not to be the main concerns influencing womens' decision-making. Despite evidence proving that modern-day epidurals are not associated with back pain, prolonged labour (1st stage) or increased caesarean section rate, and that neuropraxia (never mind paraplegia) is rare and mobility can be maintained, why do women continue to fear the epidural? Should we continue to allow non-anaesthetists to be the main source of information regarding the skills and techniques in which we specialise? Could more institutions adopt a technique whereby anaesthetists themselves provide information to women in an antenatal forum? Not one women surveyed believed that analgesia was not needed for childbirth, but "I managed" was a frequently heard phrase. Is it acceptable for women to "just manage" when the right information delivered by the right person may improve the delivery experience for a large number of women?

References
P133 Neuraxial anaesthesia and lumbar tattoo: incidence and current practice.

C Breartont, D Castilloy, P Barclay, D Broad
Tom Bryson Department of Anaesthesia, Liverpool Women’s NHS Foundation Trust, Liverpool, UK

Introduction: Tattoos are increasingly commonplace. There is a theoretical risk of ink pigment transfer from skin to nervous tissue by a Tuohy or spinal needle, with complications such as arachnoiditis or epidermoid tumors. Despite there being no clear evidence, their potentially serious nature has even led to some clinicians employing general over regional anaesthesia. This may be a high risk solution to a low risk problem.

Method: For three weeks, all anaesthetists in our tertiary obstetric unit were asked to record whenever they encountered a tattoo crossing the midline in the lumbar region, and specifically those at the level of L3/4. Concurrently we surveyed the membership of our regional obstetric anaesthetists association to ascertain current practice.

Results: During the data collection period there were 137 spinal and 100 epidural cases. 28 lumbar tattoos were recorded – 11.8% of parturients presenting for neuraxial blockade. 16 of these were said to cross the L3/4 interspace. Current practice amongst obstetric anaesthetists was gauged using an internet survey tool. There were 39 respondents. 54% perceived that the incidence was less than 5%. Around half (49%) felt that there were potential risks. No respondents were aware of any institutional guidelines. When asked: “What would you do if you found a tattoo in the place selected for neuraxial anaesthesia?” 43% stated they would “go through it”, the remainder would change their technique, or nick the skin with a blade.

Discussion: The 3rd National Audit Project reported 320,425 obstetric neuraxial blocks per year, with a “pessimistic” estimation of 4 cases of permanent harm. Combining our incidence of lumbar tattoos over the “usual” area for needle insertion of 6.8% with a 43% preference to go through it would give over 10,000 opportunities per year for complications to occur. These are theoretical, but might be expected to have attracted attention, especially during the NAP3 exercise. On balance the true incidence of severe complication is likely to be small. Uncertainty amongst professionals leads to uncertainty amongst the general populace, where the idea that an epidural will be refused because of a tattoo is commonly expressed on internet discussion forums.

References

P134 Obstetric follow-up: completion of audit loop

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Introduction: There are a number of potentially serious complications that can occur following anaesthetic interventions during pregnancy. The NAP3 report recommends that failure to identify abnormal neurology after central neuraxial blockade can lead to avoidable harm. According to the OAA/AAGBI guidelines, ideally all women who have received regional analgesia, anaesthesia or general anaesthesia for labour and delivery should be reviewed following delivery.

Method: The first audit on obstetric follow-up in our hospital was performed in 2008 and the ‘follow-up’ column of the audit book was reviewed retrospectively over a period of 15 weeks for 442 parturients who had received an anaesthetic intervention. It was found that just over a third of patients were reviewed post anaesthetic procedure. These results were presented in a departmental meeting and the following changes were suggested and implemented: a new computerised (CMiS) system was introduced, onto which all patients who had an anaesthetic intervention were entered, a new computerised follow-up printout was produced with formalised follow-up charts to document on and an obstetric induction programme for trainees was introduced. The audit was repeated in 2010 and the follow-up charts were reviewed retrospectively over a period of 15 weeks for 415 parturients.

Results: The results are depicted in Table 1. Sixty-one percent (61%) of patients were reviewed post anaesthetic procedure compared to thirty-seven percent (37%) who were reviewed in the previous audit.

<table>
<thead>
<tr>
<th></th>
<th>%Reviewed 2008</th>
<th>%Reviewed 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidural</td>
<td>37</td>
<td>48</td>
</tr>
<tr>
<td>Spinal</td>
<td>35</td>
<td>71</td>
</tr>
<tr>
<td>CSE</td>
<td>40</td>
<td>63</td>
</tr>
<tr>
<td>Epid. top-up</td>
<td>42</td>
<td>65</td>
</tr>
<tr>
<td>GA</td>
<td>33</td>
<td>76</td>
</tr>
<tr>
<td>Blood patch</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>61</td>
</tr>
</tbody>
</table>

Table 1. The proportion of patients reviewed after an anaesthetic procedure are denoted in percentages and compared between the two audit periods.

Conclusion: Introduction of a new computerised and formalised follow-up system on our labour ward, as well as raising awareness of the importance of follow-up among our trainees, greatly improved the rate of obstetric anaesthetic follow-up in our department. During our re-audit period, we noted several patients who were identified on follow-up and required further and more senior anaesthetic review, one of which had to be transferred to a different hospital for emergency imaging of the spine.

References
P135 The rapid sequence spinal - a survey of trainee practice
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Introduction: Rapid sequence induction (RSI) of general anaesthesia (GA) is the fastest anaesthetic technique in a category-I caesarean section (CICS) for fetal distress, but carries maternal risk. Recently, the rapid sequence spinal (RSS or emergency spinal) has been explored as a way to avoid GA and it’s risk in such cases. Anaesthetic trainees (ATs) currently provide the bulk of on-site maternity cover after hours, and as such encounter cases solo, when use of an RSS is possible. We therefore surveyed AT practices when using an RSS technique in the CICS for fetal distress.

Methods: We emailed the survey to the 120 ATs in our school of anaesthesia who did solo maternity on-call.

Results: 95/120 (79%) replied. 66/95 (70%) had done an RSS in a C1CS for fetal distress. Of 66: 73% shortened their normal consent; 52% routinely gave maternal oxygen (half of whom did so only for pre-oxygenation for possible GA, and half for both pre-oxygenation and intra-uterine resus (IUR)); 47% gave sodium citrate routinely; 61% did the RSS with the woman sitting; 39% in left lateral; 39% scrubbed fully pre-RSS; 61% did a quick hand wash and used sterile gloves; 21% infiltrated no local anaesthetic (LA) to the skin; 81% used spinal opioid (fentanyl 84%, diamorphine 16%); 19% used no spinal opioid; 30% had one RSS attempt before abandoning it, 70% had two; 45% always used head down tilt post RSS for block assent; 55% wanted a block of T4 to cold before surgery, 30% accepted T7 to cold, 15% accepted loss of straight leg raise; none knew of an RSS unit protocol.

Discussion: The RSS aim in fetal distress is to rapidly and safely achieve a block for CS delivery while optimising fetal oxygenation. Almost half ATs however did not give maternal oxygen, which can help IUR in such cases. ATs using a lateral position for RSS, were aware of fetal benefit and potentially improved block assent. Those using the sitting position, did so as it was most familiar. Results showed AT awareness of speed needed: many shortened consent; limited their RSS attempts; used quick hand washes; some infiltrated no LA, saving time, though pain may lead to poor positioning; some used no spinal opioid, saving time, but at expense of post-op analgesia (many however used fentanyl - quick preparation); some used head down tilt post RSS; and accepted blocks lower than normal. Many ATs also recognised a possible need for GA during RSS: giving sodium citrate and pre-oxygenation. An RSS can safely avoid risks of GA if carried out well. Some ATs however did not seem to realise the speed needed: using spinal diamorphine (slow preparation); doing a full scrub; not shortening consent; and only accepting higher blocks. No ATs knew of an RSS protocol, and as it is not widely taught, practices varied. ATs are the front line in maternity and 30% had never heard of an RSS. Units should develop protocols and teaching for this key skill. The RSS could prevent maternal morbidity and mortality.

Reference

P136 Timing of prophylactic antibiotic administration for caesarean delivery
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Introduction: Due to increasing evidence that antibiotics should be administered prior to skin incision, we altered our practice from antibiotics after delivery to before knife-to-skin, in accordance with the guidance from the Department of Health (DOH) care bundle to prevent surgical site infection. Unfortunately we subsequently experienced a case of acute severe anaphylaxis which appeared to have been induced by the administration of co-amoxiclav. Despite prompt treatment uterine blood flow was clearly compromised as the baby was born severely acidotic and required resuscitation. We therefore chose to survey the other obstetric departments within the North Western region in order to assess whether the new guidelines had been adopted.

Methods: All twelve of the Obstetric units within the North Western Deanery were contacted either by telephone or email. Where available the lead obstetrician for the unit was consulted with regard to their current policy on the timing of antibiotic administration.

Results: 10 of the 12 obstetric departments currently administer antibiotics after delivery, two departments have adopted a before knife-to-skin policy. Some of the units were currently in discussion about implementing the DOH guidelines.

Discussion: Traditionally, the concern regarding the administration of antibiotics before delivery has been based on the hypothesis that fetal exposure may mask fetal infections, increase the need for sepsis workup and possibly select more resistant pathogens. However, a randomized trial comparing maternal infectious and neonatal outcomes in women randomized to receiving antibiotics either 15 to 60 minutes before incision versus at cord clamp found no increase in neonatal sepsis, investigation, or length of stay. Overall, maternal infectious morbidity was also reduced in the pre-treatment group.

The OAA is carrying out a survey of all obstetric departments in the UK to ascertain what is the current practice with regard to prophylactic antibiotic administration. Based on our small survey of the North West region it is likely to find the majority adopting the traditional approach of antibiotics after delivery. Despite incurring a serious adverse event associated with antibiotic administration which resulted in fetal harm, we feel the current evidence strongly supports the use of prophylactic antibiotics administered prior to skin incision. We eagerly await a consensus opinion from the OAA on this matter.

References
1. Department of Health: High Impact Intervention No 4: Care bundle to prevent surgical site infection. Aug 2007