Severe Subglottic Stenosis; The Third Trimester

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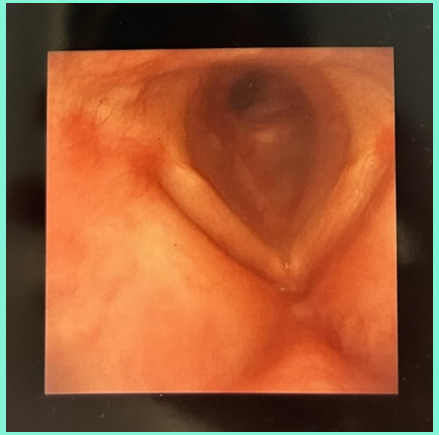
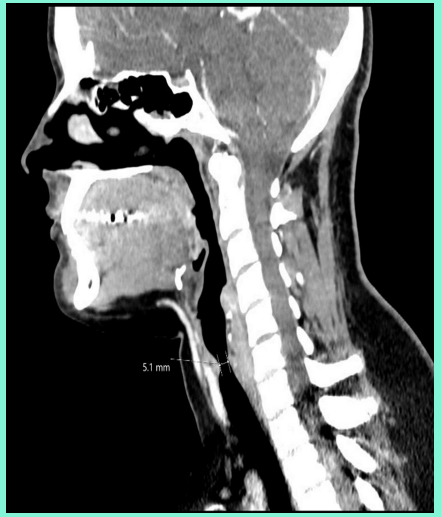
Introduction

Evaluation and management of subglottic stenosis in pregnancy is challenging. It involves a multidisciplinary team (MDT) approach between anaesthetists, ENT surgeons plus obstetric and theatre teams when planning the pre-operative, intra-operative and postoperative care.

Description

A 39-year-old para 2 at 36 weeks gestation, was scheduled for urgent microlaryngoscopy and dilatation of her known iatrogenic subglottic stenosis. She had multiple previous subglottic dilatations and now presented symptomatic in her third trimester with audible stridor and increasing shortness of breath. Flexible nasendoscopy by ENT surgeons revealed severe subglottic stenosis of approximately 5 mm. Airway examination was otherwise normal. This is a unique case, with limited similar case reports.





Discussion

The MDT agreed that midwives check the fetal heart rate before and after theatre and the obstetric team would be available if required. ENT surgeons were scrubbed and ready before induction of anaesthesia. Aspiration prophylaxis, omeprazole on the ward and sodium citrate in theatre, was given and suction ready. Routine monitoring as per Association of Anaesthetists guidance was initiated. The patient was preoxygenated, in head up and left lateral tilt position, using high flow nasal oxygenation (HFNO) at 30 l/min increasing to 70 l/min on induction. Anaesthesia was induced with 1 mg midazolam, 100 mcg fentanyl, propofol TCI at 4-6 mcg/ml and 50 mg rocuronium. Antiemetics were administered plus IV paracetamol. Propofol TCI was continued for maintenance alongside HFNO for apnoeic oxygenation during this tubeless case. Surgical suspension laryngoscopy revealed severe narrowing in the subglottis. Sequential balloon dilatation of the subglottic stenosis was successful up to 15 mm. Muscle relaxant was reversed with 500 mg sugammadex and confirmed using train of four monitoring. Jaw thrust was maintained until return of spontaneous ventilation. Total apnoeic time was 7 minutes and 45 seconds, saturations remained over 95%. Postoperatively, there was significant improvement in symptoms. She was reviewed and discharged home on day of surgery. It was noted that a size 7.0 endotracheal tube would be suitable if required in an emergency. She was reviewed at anaesthetic antenatal clinic and delivered a healthy baby boy by elective caesarean section under spinal anaesthesia at 39 weeks gestation.

Acknowledgements
ENT team, RVH, Belfast
Obstetric and Midwifery teams, RJMH, Belfast

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Primary Pleural Synovial Sarcoma: A rare cause of antenatal chest pain

G Best, J Growcott, A Blair: Craigavon Area Hospital

Pleural Synovial Sarcoma (PSS) is a rare type of mesenchymal tumour first described in 1996 [1]. We describe a case of primary PSS presenting during pregnancy and diagnosed following VATS pleural biopsy.

Description

A 30 year old Para 3 presenting at 29 weeks gestation with dyspnoea and right sided pleuritic chest pain was treated with antibiotics for presumed community acquired pneumonia (fig. 1)

Two further presentations to hospital with severe upper back pain, progressive hypoxia and hypertension alongside evidence of foetal compromise with growth on the 5th centile culminated in admission to critical care for high flow nasal oxygen and intravenous hypertensives.

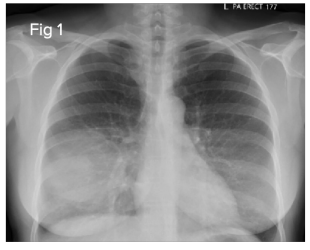
Fig 1


Fig 2

Worsening clinical condition (fig. 2) alongside a non reassuring CTG led to an expedited delivery via caesarean section under general anaesthesia at 30 weeks gestation.

Extubated on day one post natally and proceeded to CT chest imaging which revealed an enhancing pleural lesion arising from the pleura with an associated large haemothorax (fig. 3 & 4)

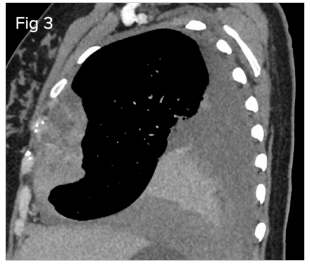
Fig 3

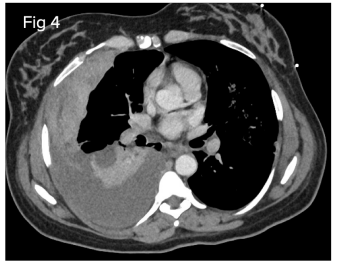
Fig 4

A tissue diagnosis obtained via VATS pleural biopsy confirmed the diagnosis of PSS (fig. 5). Unfortunately unsuitable for surgical resection due to tumour extent and she progressed to palliative radiotherapy with ongoing stable disease appearances (fig.6).

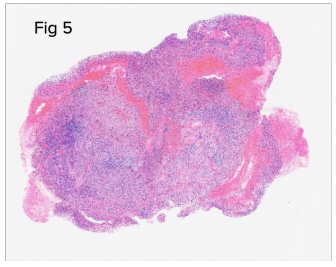
Fig 5

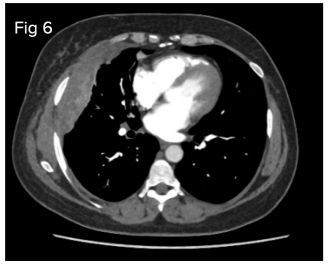
Fig 6

Discussion

Cancer diagnosis during pregnancy is rare with an incidence of 1 in 1000, but prevalence is increasing due to advancing maternal age [2].

Synovial sarcomas usually present between age 15 and 40 and derive from pluripotent mesenchyme capable of synovial differentiation [1]. Usually occurring in the limbs near large joints, PSS represent a small subsection.

Common presenting symptoms are non specific; chest pain, cough, dyspnoea and haemoptysis.

Diagnosis is challenging due to similarity with other pleural malignancies but is supported by radiology, pathology and cytogenetics [1].

Synovial sarcomas in the extremities are sensitive to chemotherapy but optimum management for PSS has not been defined. Multimodal management with surgery, radiotherapy and chemotherapy have been used [1].

Pregnancy presents further challenges; reluctance to administer unnecessary ionising radiation and concerns about foetal wellbeing impacting management when diagnosed antenatally.

PSS are aggressive tumours with a high chance of recurrence despite aggressive therapy and a 5 year survival of 57% [1].

This case highlights the value of a multidisciplinary approach in a parturient presenting with persistent respiratory symptoms and abnormal radiology.

References

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Spinal epidural lipomatosis: a potential cause of complications with neuraxial anaesthesia in the obstetric population?

Dr L Gray (ST5 Anaesthetics) & Dr Y Nawaz (Consultant Anaesthetist),
Royal Jubilee Maternity Hospital

References

1. Kim K, Mendelis J, Cho W. Spinal Epidural Lipomatosis: A Review of Pathogenesis, Characteristics, Clinical Presentation & Management. Global Spine Journal. 2019, 9(6):658-665.
2. Hooten MW, Hogan MS, Sanemann TC, Maus TJ. Acute spinal pain during attempted lumbar epidural blood patch in congenital lumbar spinal stenosis and epidural lipomatosis. Pain Physician. 2008, 11(1): 87-90.

Acknowledgements

Thank-you to the patient for providing consent to publish this case report and MRI image.

Spinal Epidural Lipomatosis (SEL) is a rare finding of excess adipose tissue within the spinal canal (1,2). Most are asymptomatic, however, symptoms can include those of myelopathy or radiculopathy such as limb weakness, paraesthesia, back pain or cauda equina like symptoms (1). SEL is associated with long-term corticosteroid use, obesity, endocrine disorders, post-operative spinal changes and use of protease inhibitors for the treatment of Human Immunodeficiency Virus (HIV) (1,2). We present a case diagnosed after complications following central neuraxial blockade (CNB).

Description

A 19-year-old primigravida with a raised BMI (34.kg/m2) was admitted for induction of labour due to reduced foetal movement at 39+5 weeks gestation. She requested an epidural for labour which was complicated by a recognised accidental dural puncture (ADP). The procedural anaesthetist reported an indistinct end point with no loss of resistance to saline until ADP at 5cm in the L3/L4 interspace. A second epidural was inserted but resulted in patchy analgesia. The patient later required a Caesarean section due to foetal hypoxia. A single pass spinal was performed with 10mg hyperbaric bupivacaine, diamorphine and alfentanil. A high spinal block occurred with shortness of breath and reduced oxygen saturations, the patient was supportively managed while the surgery proceeded uneventfully. She reported symptoms typical of a post-dural puncture headache (PDPH) on day one post-operatively. The PDPH was treated conservatively as the patient had developed a urinary infection with raised inflammatory markers requiring intravenous antibiotics. By day five she reported lower back pain and imaging of the lumbar spine was arranged. This showed 'no acute pathology but an incidental epidural spinal lipomatosis extending from L4 towards the sacral canal encasing the distal cauda equina'. On day seven, the patient had an uneventful epidural blood patch with immediate headache relief following consecutive days of reducing infection markers. She was discharged home on oral antibiotics and reviewed six weeks later where she reported continued resolution of all her symptoms.

T1 Weighted sagittal MRI segment of case patient showing epidural fat deposits

Discussion

This patient with an undiagnosed SEL had neuraxial anaesthesia complicated by ADP, high spinal and PDPH, with a delayed blood patch due to raised inflammatory markers. We propose that accumulation of epidural fat may alter tactile feedback from the Tuohy needle and alter the quality of loss of resistance to saline. Extra adipose tissue may reduce the epidural space volume increasing the risk of an ADP while slow cerebrospinal fluid flow could cause an unrecognised accidental dural puncture (2). Additionally, the risk of an ADP may be increased in patients with SEL due to extra epidural adipose tissue compressing and reducing the size of the epidural space (2). The incidence of spinal epidural lipomatosis may increase due to rising rates of maternal obesity and patients with a diagnosis of SEL who undergo CNB may require counselling about the potential for additional procedural risks.

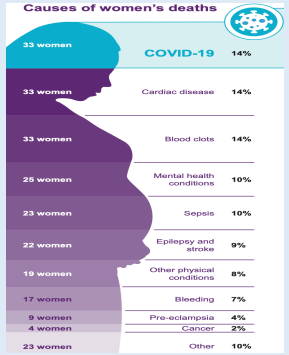
Systemic Thrombolysis for Treatment of Massive Pulmonary Embolism Following a Postpartum Haemorrhage

Dr Anastasia McBride ST4, Dr Honor Love and Dr Giri Saminathan

Western Health and Social Care Trust

Introduction

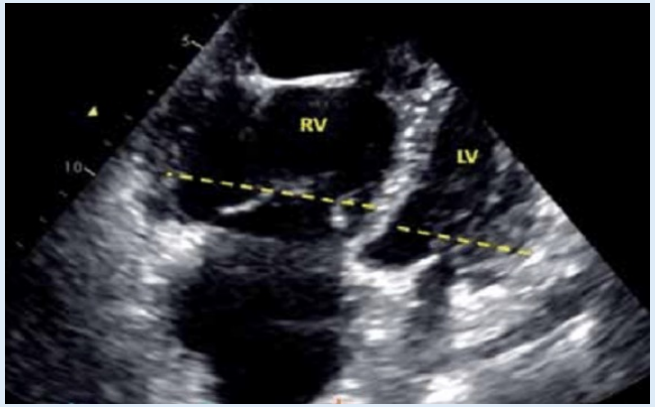
- VTE is one of the leading causes of direct maternal death
- Occurs in 1/1,000 pregnancies
- 20x risk in puerperium
- Increased use of antenatal LMWH following improved antenatal risk stratification



MBRRACE-UK, Maternal deaths 2019-21, Oct 2023

What happened?

- 36-year-old para 2, 2 previous NVD
- Admitted 33^{+4} weeks with severe pre-eclampsia
- Deterioration Day 11 – uncontrolled HTN despite triple antihypertensive therapy, significant non-depedent peripheral and pulmonary oedema
- Precipitous labour and delivery
- Massive PPH > 3 litres
- PEA cardiac arrest
- No sustained ROSC despite correction of blood volume
- Bedside ECHO showed dilated right ventricle and ECG: RBBB, Right axis deviation
- Decision to perform thrombolysis for presumed PE
- Transferred to ICU, rapid recovery next 24 hours
- CTPA confirmed PE



What do we know?

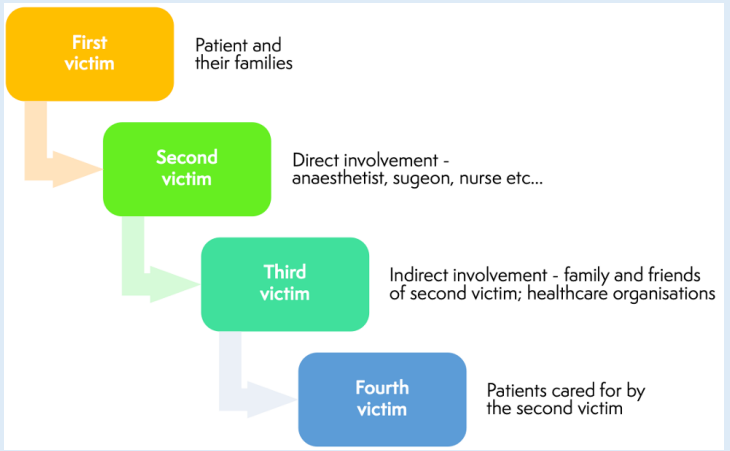
- Incidence of cardiac arrest in obstetric population 1 in 12,700
- PET increases the risk of VTE by 5 fold
- Risk is multifactorial
- Decision for administering thrombolysis requires senior MDT input
- Unfractionated Heparin Vs Thrombolysis
  - Meta-analysis; thrombolytic therapy more effective recurrent PE or death
  - Anticoagulant alone will not reduce obstruction in circulation

Systematic review of thrombolysis in pregnancy:

Complication	Number affected (n = 141)
Death	4 (2.8%)
Major Bleeding	12 (8.5%)
Mild/moderate Bleeding	13 (9.2%)
Fetal death	2 (1.4%)

Summary

- Thrombolysis should not be withheld in cases of life-threatening PE but requires multidisciplinary input
- Thrombolysis should not be withheld during pregnancy when indicated
- Case highlights the need to further develop guidance
- The psychological impact on patients and staff cannot be underestimated and a robust debriefing process is essential



NAP 7:perioperative cardiac arrest, Nov 2023

References

MBRRACE-UK Saving Lives Improving Mothers' Care - Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2019-21

At the Heart of the Matter. Report and findings of the 7th National Audit Project of the Royal College of Anaesthetists examining Perioperative Cardiac Arrest. Soar J, Cook TM editors. Royal College of Anaesthetists: 2023. ISBN 978-1-900936-35-4

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Use of ROTEM in Massive Obstetric Haemorrhage – a new service for Royal Jubilee Maternity Hospital

Dr Sara Henry (Clinical Fellow in Obstetric Anaesthesia), Dr Rebecca Colleran (ST4 Anaesthesia), Dr Yasmin Nawaz (Consultant Anaesthetist)
Royal Jubilee Maternity Hospital, Belfast

Background

Massive Obstetric Haemorrhage (MOH) is a leading direct cause of maternal death in the UK. MBRRACE reports have highlighted the problem of slow processing times for coagulation tests delaying blood product administration [1]. Use of point of care coagulation testing (POCCT) such as ROTEM is recommended by the AAGBI, OAA and RCOA [2] as a tool to speed up the recognition and treatment of coagulation disorders in MOH. We compare the management of patients with MOH in our unit before and after the introduction of ROTEM in February 2023.

Results

Over a 13 month period there have been 134 ROTEM tests performed on 112 patients (19% of patients with a QBL >1L). Fourteen (61%) of 23 patients with at least one abnormal result were treated appropriately according to the algorithm and this adherence to the algorithm increased with time. Post ROTEM introduction, there were 19 cases of MOH which required MTP activation. Of these, 7 patients received fibrinogen concentrate (FC) compared with none in 2021. Transfusion of packed red cells and platelets was reduced and FFP use fell from 2.3 to 1.1 units per patient. The average time for a laboratory coagulation result was 1hr 47 mins (43mins – 3hrs 30mins). An anonymous survey of ROTEM experience in RJMH gathered 17 responses from 23 anaesthetists. Sixteen (94%) respondents agreed or strongly agreed that ROTEM was easy to use and 100 % agreed or strongly agreed that the algorithm was easy to use and that ROTEM is a useful tool to help manage MOH.

Table 1 showing comparison of product use, QBL and patient outcomes in MTP activated MOH before and after the introduction of ROTEM

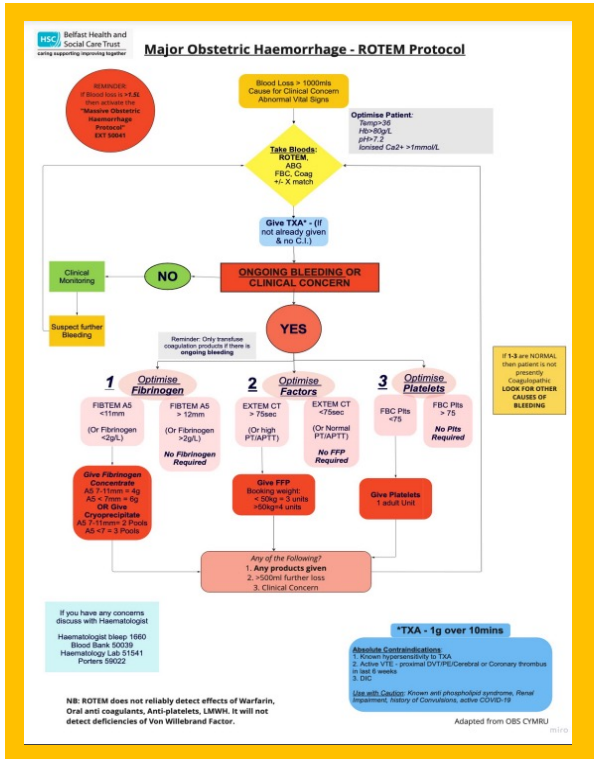
	Pre ROTEM 2021 (19) Units/patient (Total)	Post ROTEM 2023 (19) Units/patient (Total)
Cryoprecipitate	0.4 (8)	0.3 (7)
FC	0 g (0 g)	1.5 g (30 g)
FFP	2.3 (43)	1.1 (21)
Platelets	0.3 (6)	0.1 (2)
Packed Red Cells	2.8 (54)	2 .2(43)
QBL (range)	1.5 – 7.4 L	1 – 6 L
Hysterectomy	3	2
ICU Admission	1	2

Discussion

Implementation of ROTEM with actionable results within 15 minutes has allowed faster recognition and targeted management of coagulation in the face of slow laboratory results. This has been achieved by measures including the use of a ROTEM-guided MOH algorithm and fibrinogen concentrate available on site. Our data shows increased use of FC with decreased FFP use in MTP activated cases. Feedback from anaesthetists using ROTEM has been very positive however the training of rotating anaesthetists and new midwives remains an ongoing challenge.

Methods

- Service evaluation of MOH management comparing pre-ROTEM (2021) with post-ROTEM (March 2023 – present, 13 months) data
- Focusing on cases requiring activation of Massive Transfusion Protocol (MTP)
- Retrospective data collection including products transfused, QBL and patient outcomes
- Analysis of compliance with ROTEM-guided algorithm
- Survey of experience with ROTEM, RJMH, April 2024 (trainee/consultant anaesthetists)
- Approval from Belfast Trust Governance Committee.



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Adopting the use of percentage blood loss in maternal haemorrhage for women with low body weight as recommended by MBRRACE-UK

Dr Emma Murray ST7 Dr Richard Morrison Consultant Anaesthetist BHSCT

MBRRACE-UK
Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

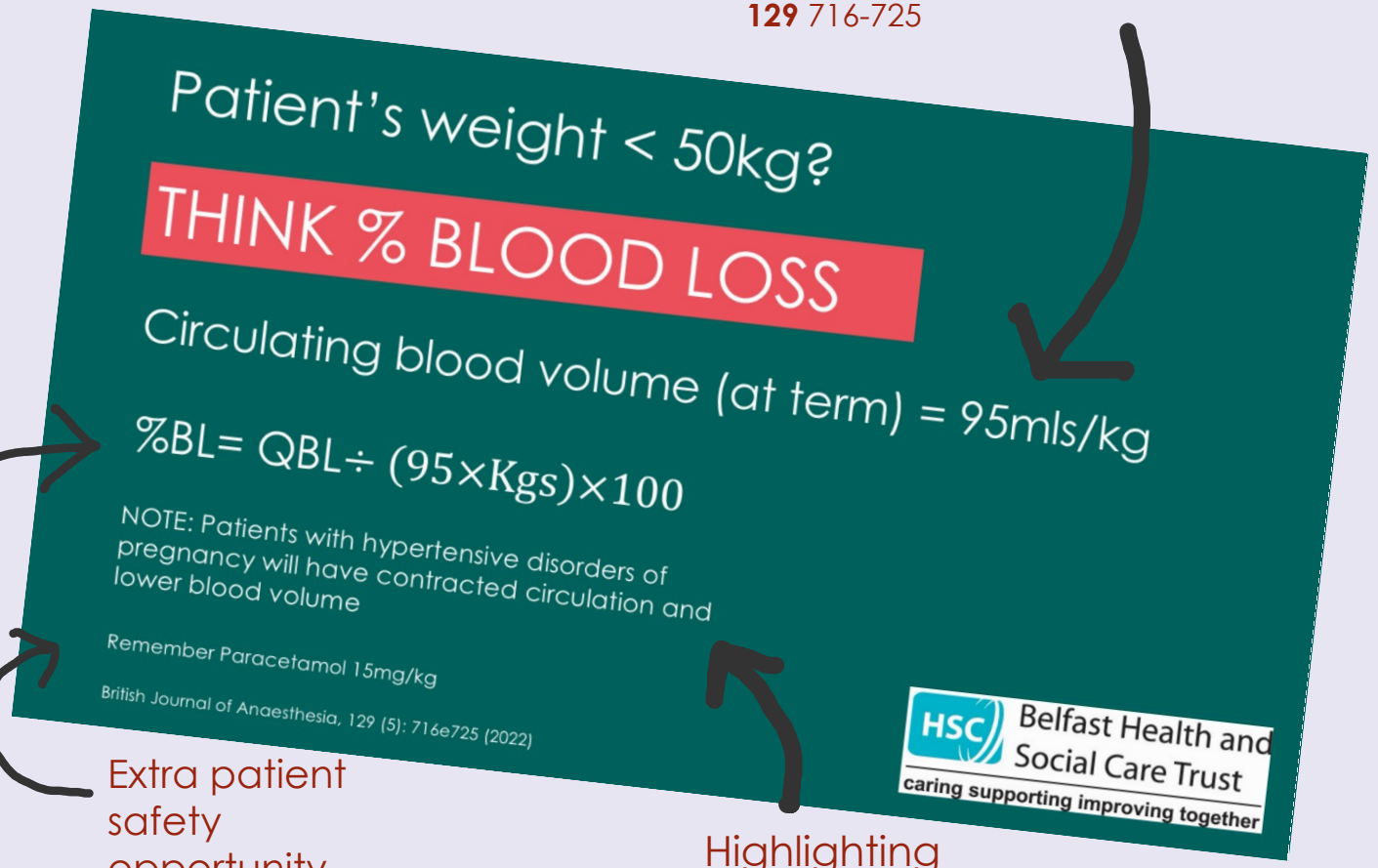
"Ensure that the response to obstetric haemorrhage is tailored to the proportionate blood loss as a percentage of circulating blood volume based on a woman's body weight." MBRRACE-UK report 2016-18"

Awareness and education provided via 2 minute video sent to midwifery and medical staff

Feedback on video and poster visibility and usefulness continues to be collected

Aim to change "High BMI" prompt in morning huddle to "BMI considerations"

Example equation to help with cognitive load



Extra patient safety opportunity

Highlighting further At Risk population

Kennedy H, Haynes S.L, Shelton C. Maternal body weight and estimated circulating blood volume: a review and practical nonlinear approach. BJA 2022; **129** 716-725

Poster visible in elective and emergency theatres in RMH

An all ENCOMPASSing change of EPIC proportions: preparation and implementation of a new digital medical record system

Dr Hannah Houston, Dr Grace McCrystal, Dr Grace McClune

Introduction

The launch of EPIC medical records system "Encompass" in the South Eastern Health and Social Care Trust in November 2023 was the first stage of its roll out across Northern Ireland. This system completely digitalises both patients' records and administrative pathways and requires wholesale change to local and regional working practices and IT systems.

Methods

Prior to launch, all staff underwent training and were encouraged to 'shadow chart'. A planned downturn could not take place for obstetric services, so measures were implemented to ensure capacity and patient care were not compromised. These included additional consultant led weekend elective caesarean section lists and additional staff (both midwifery and anaesthetic) were made available both in and out of hours to ensure that distraction caused by unfamiliarity with the system would not compromise patient care.

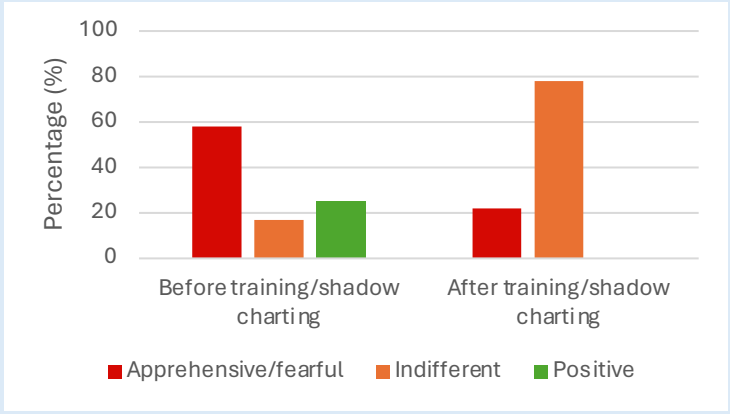
Results

To assess the impact of the launch we surveyed anaesthetists who regularly work in labour ward.

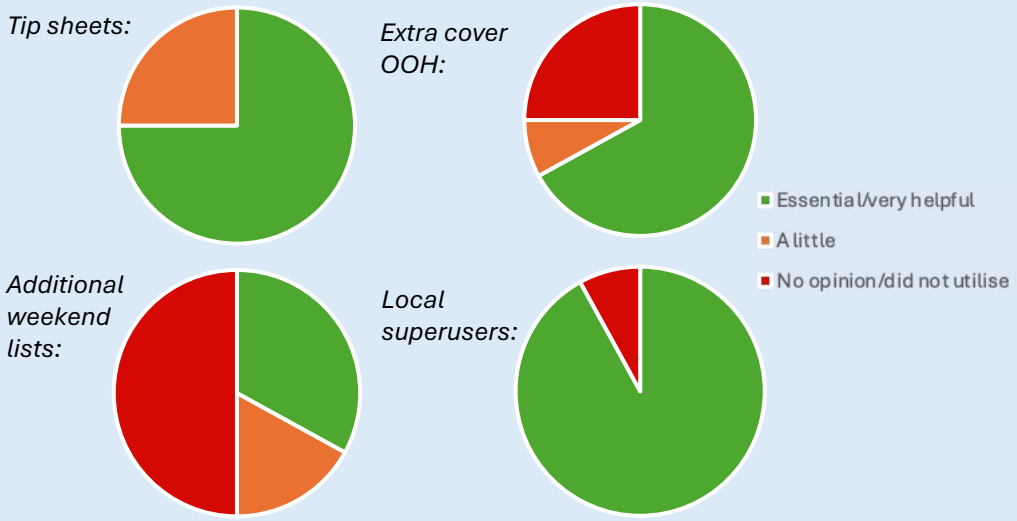
- Respondents: 58% consultants, 33% trainees, 9% SAS

We asked:

How did you feel about obstetric related documentation prior to training/shadow charting vs after?



In hindsight, how helpful did you find the following measures put in place to ease the transition to Encompass?



"Tip sheets were absolutely invaluable as a reg covering OOH in obstetrics without being there during the day time."

"Encompass consumes attention and time of clinical staff, it is imperative to have additional staffing of all clinical groups where emergency care is delivered"

"I would advise people in other trusts to keep calm- there was a feeling of mass hysteria in the whole trust after go live"

"Our local MIOs were superheroes - without them it would have been a disaster"

"Practice & more practice"

Discussion

The launch brought many challenges. Future mitigating strategies against the disruption should include a trial of the whole patient journey throughout their admission including transfer of the simulated patient to various clinical environments. This will help identify and allow resolution of patient flow problems prior to launch. We hope that our reflections on the process and lessons learned will help other trusts in NI implement the new system.

South Eastern Health and Social Care Trust

encompass DELIVERING CARE TOGETHER

It's time to make the Cool Stick, stick.

Dr Jemma Smyth CT2 , Dr Alison Blair Consultant Anaesthetist, Southern Trust.

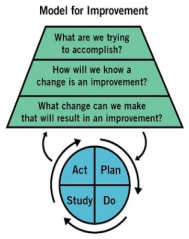
Introduction

The majority of caesarean sections in the UK are performed under neuro-axial blockade. The main method of testing the level of this block in our trust is ethyl chloride spray. This is an aerosolised spray of chloroethane which has many draw backs , including cost and it's environmental impact. [1]

Those draw backs include:

Ethyl chloride is only manufactured in Germany , then delivered 1155km to England and then onto Craigavon hospital another 500km.

- It is on the National Emissions Standards For Hazardous Air Pollutions list. It is acutely toxic to birds, animals and aquatic life and affects the growth rate of plants. Once used, the spray is released into the environment and remains in the atmosphere for 48 days before it breaks down.
- The cost of purchasing Ethyl Chloride sprays for the trust is £1059.5 every month or £12,714 per year.
- Ethyl chloride can induce allergic reactions to the skin for some patients. Exposure to high levels of ethyl chloride has been shown to result in temporary feelings of drunkenness, dizziness and lack of muscle coordination.



The cool stick is an alternative method to assess the level of blockade with many advantages and easier disposal, yet it is poorly advertised as an alternative and is not often used in our maternity department.

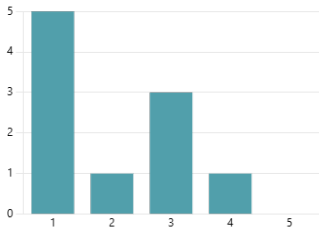
Aim

The aim of this quality improvement project was to educate our maternity department on the benefits of using the cool stick in assessing the level of neuro-axial blockade and make it more likely that anaesthetists choose to use the cool stick , over ethyl chloride spray in maternity.

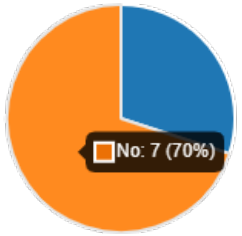
Method

We circulated a qualitative survey to colleagues of all levels, ascertaining prior use of the cool stick and knowledge of issues associated with ethyl chloride spray. We then carried out an education session and displayed posters throughout the maternity theatre. We then re-surveyed colleagues and assessed whether we had improved our department's knowledge about the benefits of the cool stick and improved the likelihood anaesthetists choosing to use the cool stick in maternity.

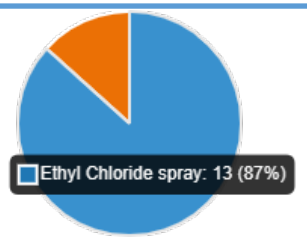
Results



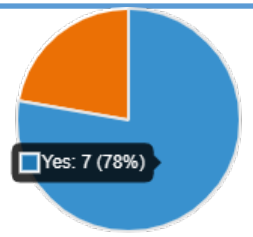
The bar chart shows survey respondents view on ease of use of the cool stick. 1 being extremely easy – 5 being difficult.



This pie chart shows that 70% of survey respondents prior to our teaching were unaware of the problems associated with ethyl chloride spray.



Pie chart showing pre-teaching survey results - 87% of respondents would choose ethyl chloride spray over the cool stick.



Pie chart showing results following teaching, 78% of respondents were more likely to use the cool stick , now knowing ethyl chloride spray draw backs.

Discussion

Our results showed that following this education session, all respondents had used the cool stick and they were 78% more likely to try the cool stick in maternity theatres. This is in comparison to 87% of respondents prior to our teaching choosing ethyl chloride spray as their first choice.

Conclusion

In keeping with all areas of anaesthesia there is rarely a 'one size fits all' approach and anaesthetists differ on their preference of equipment. Some anaesthetists were not in favour of a shift towards the cool stick , and others wanted neither the spray nor the cool stick. Overall, it was a successful quality improvement project with our aim to encourage more use of the cool stick , but it will remain important to have both choices available to assess neuro-axial blockade. Going forwards, we hope further cycles of this project will show a reduction in the volume of ethyl chloride spray ordered for our department and with this reduced costs and a reduced carbon footprint

[1] Arsanious, Nugent, Rafia, Papoutsos, C. McCabe 2023 'Reducing ethyl chloride usage with innovative cool sticks' , BJA VOLUME 6, 100153

Labour analgesia QR code

Dr S. Currie, Dr R. Barr (Altnagelvin hospital, WHSCT)

Western Health and Social Care Trust

Introduction

- Lack of antenatal advice and resources in WHSCT
- Recent introduction of remifentanil PCAs on Altnagelvin labour ward
- Essential patients aware of analgesic options prior to labour
- A QR code allows easy, immediate access
- Compliments recent addition of QR code elective C-section resource

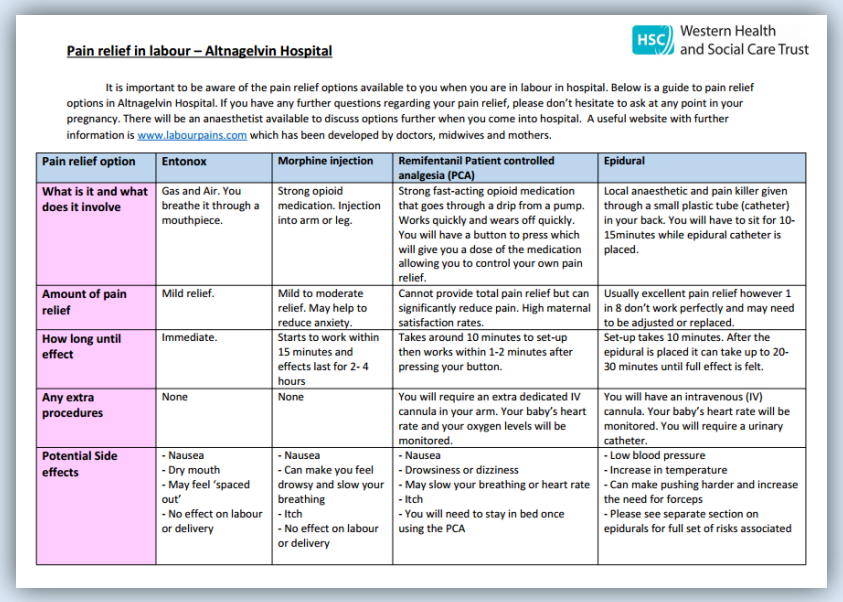
Methods

- Developed a concise resource
- All options for labour analgesia included
- Information includes risks and benefits of each (see images for examples)
- Document disseminated to obstetric anaesthetists and midwifery teams for feedback
- A QR code developed linking to finalised document
- Document can be readily updated
- Added to antenatal notes August 2023

Pain relief in labour

Please scan the QR code below to access information on your options for pain relief during labour. If you have any further questions regarding your pain relief, please ask a midwife or doctor during your antenatal appointments or when you attend the antenatal or labour ward.

SCAN ME

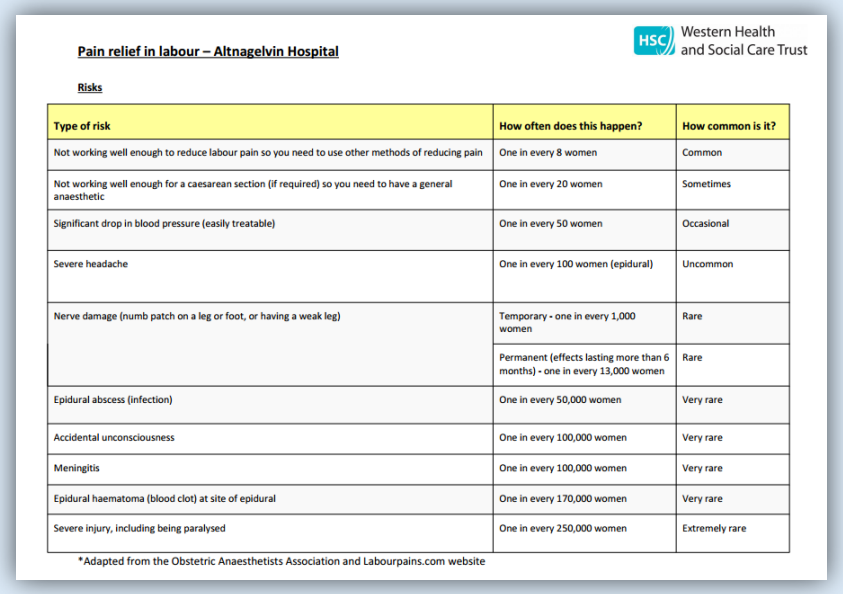


Pain relief in labour – Altnagelvin Hospital

Western Health and Social Care Trust

It is important to be aware of the pain relief options available to you when you are in labour in hospital. Below is a guide to pain relief options in Altnagelvin Hospital. If you have any further questions regarding your pain relief, please don't hesitate to ask at any point in your pregnancy. There will be an anaesthetist available to discuss options further when you come into hospital. A useful website with further information is www.labourpains.com which has been developed by doctors, midwives and mothers.

Pain relief option	Entonox	Morphine injection	Remifentanil Patient controlled analgesia (PCA)	Epidural
What is it and what does it involve	Gas and Air. You breathe it through a mouthpiece.	Strong opioid medication. Injection into arm or leg.	Strong fast-acting opioid medication that goes through a drip from a pump. Works quickly and wears off quickly. You will have a button to press which will give you a dose of the medication allowing you to control your own pain relief.	Local anaesthetic and pain killer given through a small plastic tube (catheter) in your back. You will have to sit for 10-15minutes while epidural catheter is placed.
Amount of pain relief	Mild relief.	Mild to moderate relief. May help to reduce anxiety.	Cannot provide total pain relief but can significantly reduce pain. High maternal satisfaction rates.	Usually excellent pain relief however 1 in 8 don't work perfectly and may need to be adjusted or replaced.
How long until effect	Immediate.	Starts to work within 15 minutes and effects last for 2- 4 hours	Takes around 10 minutes to set-up then works within 1-2 minutes after pressing your button.	Set-up takes 10 minutes. After the epidural is placed it can take up to 20-30 minutes until full effect is felt.
Any extra procedures	None	None	You will require an extra dedicated IV cannula in your arm. Your baby's heart rate and your oxygen levels will be monitored.	You will have an intravenous (IV) cannula. Your baby's heart rate will be monitored. You will require a urinary catheter.
Potential Side effects	- Nausea - Dry mouth - May feel 'spaced out' - No effect on labour or delivery	- Nausea - Can make you feel drowsy and slow your breathing - Itch - No effect on labour or delivery	- Nausea - Drowsiness or dizziness - May slow your breathing or heart rate - Itch - You will need to stay in bed once using the PCA	- Low blood pressure - Increase in temperature - Can make pushing harder and increase the need for forceps - Please see separate section on epidurals for full set of risks associated



Pain relief in labour – Altnagelvin Hospital

Western Health and Social Care Trust

Risks

Type of risk	How often does this happen?	How common is it?
Not working well enough to reduce labour pain so you need to use other methods of reducing pain	One in every 8 women	Common
Not working well enough for a caesarean section (if required) so you need to have a general anaesthetic	One in every 20 women	Sometimes
Significant drop in blood pressure (easily treatable)	One in every 50 women	Occasional
Severe headache	One in every 100 women (epidural)	Uncommon
Nerve damage (numb patch on a leg or foot, or having a weak leg)	Temporary - one in every 1,000 women	Rare
	Permanent (effects lasting more than 6 months) - one in every 13,000 women	Rare
Epidural abscess (infection)	One in every 50,000 women	Very rare
Accidental unconsciousness	One in every 100,000 women	Very rare
Meningitis	One in every 100,000 women	Very rare
Epidural haematoma (blood clot) at site of epidural	One in every 170,000 women	Very rare
Severe injury, including being paralysed	One in every 250,000 women	Extremely rare

*Adapted from the Obstetric Anaesthetists Association and Labourpains.com website

Results/initial feedback

- 15 sets of notes (December 2023)
- QR code available in 13/15 sets
- 10/13 patients had been informed and were aware of the code
- 6/10 had read information
- 100% found it useful. Patients found it relevant and helped to reduce anxiety
- Following this, further staff education was undertaken

Discussion

- QR code is a potentially effective means to provide labour analgesia information antenatally
- Environmentally friendly
- Recognition that some patients may not want to use resource
- Resource currently under-utilised but when read has been informative and useful for patients prior to attending hospital

Ongoing work

- Keeping resource up to date. Updated to include recent implementation of PIEB regimen
- Regular audit of usage and staff education to embed it into antenatal interactions with patients
- Translating for common languages

Implementing a Postnatal Anaesthetic Review Sticker in Altnagelvin Hospital

Dr A Murray (CT2), Dr Cherian-McIvor (Consultant Anaesthetist), Western Health and Social Care Trust

Northern Ireland Obstetric Anaesthetic Network

Introduction

The RCOA updated their guidelines for the Provision of Anaesthesia Services for an Obstetric Population in 2024. Detailed in the guidelines is the recommendation that all women who have received an anaesthetic intervention for labour and/ or delivery should be reviewed postnatally (1).

The postnatal review gives women an opportunity to ask any further questions about the anaesthetic care they received during labour and delivery, and to address any concerns raised. It is essential to document the review to facilitate safe discharge planning.

Aims

1. To improve the quality of the postnatal anaesthetic review so that **100% of patients are reviewed**

2. To improve **documentation** of review **to facilitate safe discharge.**

Methods

Created a baseline survey to find out about current postnatal anaesthetic review practice in Altnagelvin Hospital.
By reviewing practice in other regions and gaining feedback from colleagues in Altnagelvin, I created a structured sticker for the notes to standardise the postnatal review.

Post-Natal Anaesthetic Review

Anaesthetic Procedure: _____ Date of Procedure: _____

Obstetric Procedure: _____

Complications:

Headache	yes / no
Paraesthesia	yes / no
Motor Deficit	yes / no

If yes, please circle the pathway commenced: Headache / Delayed Neurological Recovery

Is postnatal analgesia adequate?	yes / no
Has patient passed urine?	yes/ no

Follow up:
No further Anaesthetic input required ☐
If further Anaesthetic review required, anaesthetist will arrange

Date/time: _____ Name: _____

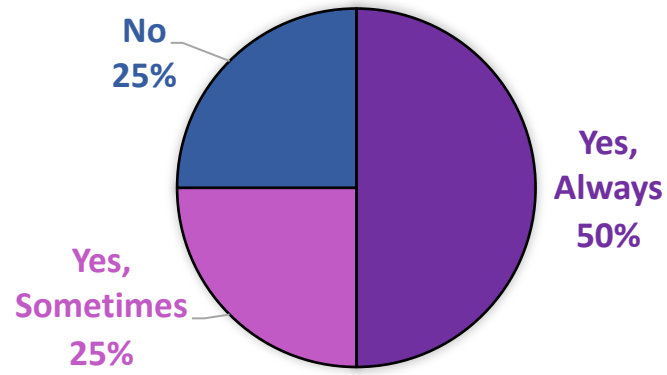
Grade: _____ Signed: _____

Results

Baseline survey showed that **25% staff completing the survey do not routinely document the postnatal anaesthetic review** in the notes.

Repeat survey is ongoing to find out if documentation has been improved by use of the sticker.

Do You Write in the Patient's Notes?



100% staff felt a sticker would improve documentation

Discussion

This sticker is a simple method implemented to aid documentation, leading to safe discharge and increased patient safety following their anaesthetic intervention. Future work could include aiming to standardise the documentation sticker across the region.

The next step for this project is creating pathways for headache and delayed neurological recovery following anaesthetic intervention. This work is ongoing.

References: (1) https://www.rcoa.ac.uk/gpas/chapter-9#ref-25

HSC Western Health and Social Care Trust

Enhanced Maternal Care: Introducing a new course designed around maternal critical care for midwifery staff

C. Hamilton, E. Gorman, G. Doogan, C.McDonnell, Antrim Area Hospital, NHSCT

#teamNORTH

INTRODUCTION

- Critical illness in the pregnant and postnatal population is becoming increasingly common, due to factors including advanced maternal age, obesity, and other associated comorbidities.
- Recommendations for standard of care of critically ill parturients are outlined in the 2018 Report 'Care of the critically ill woman in childbirth; enhanced maternal care.'[1]
- Our maternity unit provides Level 2 care for many of these patients on delivery suite.
- The PROMPT course provided by NHSCT does not include the CiPP course [2]
- The midwifery staff highlighted the need for additional training in providing enhanced maternal care.

OBJECTIVES

- Meet the local needs of training, particularly for newly qualified midwives.
- Extend the training provided by the PROMPT course.
- Improve confidence in identification of the sick parturient and delivering higher level of care.

COURSE DESIGN

- Half day pilot course
- **Multidisciplinary team including**:

- Practice Development Midwife
- Midwifery Sister
- Senior Gynaecology Nurse
- Simulation Fellow
- Consultant Obstetrician
- Anaesthesia Specialty Doctor
- Anaesthesia and ICM Trainee
- Consultant Anaesthetist

- **Course layout**

- *Introductory lecture*

- *4 workshops*
  - Nasogastric Tube insertion
  - ABCDE assessment
  - Identification and escalation of the sick pregnant or postpartum lady
  - Arterial Line management and ABG interpretation

- *Simulated scenarios*
  - Sepsis
  - Acute pulmonary oedema and HELLP syndrome

FEEDBACK

- 15 midwives attended. They completed a pre- and post-course evaluation to assess their own knowledge, skills and confidence,
- There was 100% improvement in self-assessed knowledge and confidence.
- 100% rated the course as "Excellent".

"Very well organised and useful in practice"

"A really safe learning environment"

"All midwives should complete this course"

DISCUSSION

Given the extremely positive feedback from candidates and faculty, we plan to progress by running this course bi-annually in the NHSCT.

We plan to develop this as a full day course with further workshops and simulated scenarios.

We are considering making it a multidisciplinary course, available to all team members,

REFERENCES

1. *Royal College of Anaesthetists. Care of the critically Ill woman in childbirth; Enhanced Maternal Care. 2018*

2. *The PROMPT CiPP Editorial Team 2019. Critical Care PROMPT Course Handbook. Cambridge University Press*

‘Core Topics in Anaesthesia for Obstetric Trainees’: implementation of a new course

Dr Thérèse McLaughlin ST6, Dr Brendan Haughey ST7, Dr Charlene McDonnell Consultant Anaesthetist

Northern Health and Social Care Trust

INTRODUCTION

A formal teaching programme, delivered by anaesthetists, on obstetric anaesthesia is not currently provided for trainees working in obstetrics and gynaecology (O&G) in Northern Ireland. Given the significant interface between the two specialties and the extensive reference to anaesthesia on the MRCOG curriculum [1], a course was developed and then delivered in Antrim Area Hospital which aimed to improve the knowledge of obstetric and gynaecology trainees.

METHODS

All O&G trainees in NI were invited to attend. The course was divided into two sessions. The morning session was delivered in-person and the afternoon session was available both in-person and online. The faculty comprised senior anaesthetic specialty trainees (ST6/7) and consultants with an interest in obstetric anaesthesia. Each topic covered had a clearly identified learning outcome and delegates were asked to complete a pre and post course questionnaire using a 5-point Likert scale to critically evaluate self learning.

Course Programme:

Time	Topic
09.00	Epidurals and Spinals: The Basics
09.30	Complications of Regional Anaesthesia and their Management
10.05	Remifentanil on Delivery Suite
10.25	Break
10.45	General Anaesthesia for LSCS
11.25	Case Based Discussion: Conduct of Anaesthesia for LSCS
12.15	Small Group Teaching: Arterial Lines on Delivery Suite
12.45	Lunch
14.00	The Preassessment Clinic
14.30	Pre-eclampsia and the Anaesthetist
15.00	Anaesthetic Emergencies: What Should the Obstetrician Know?
16.00	Maternal Critical Care

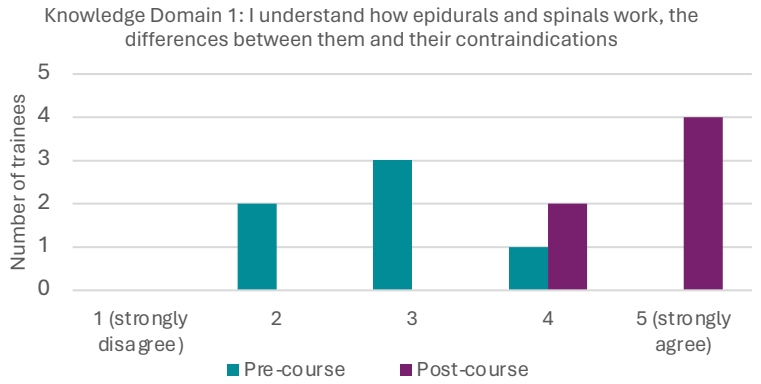
RESULTS

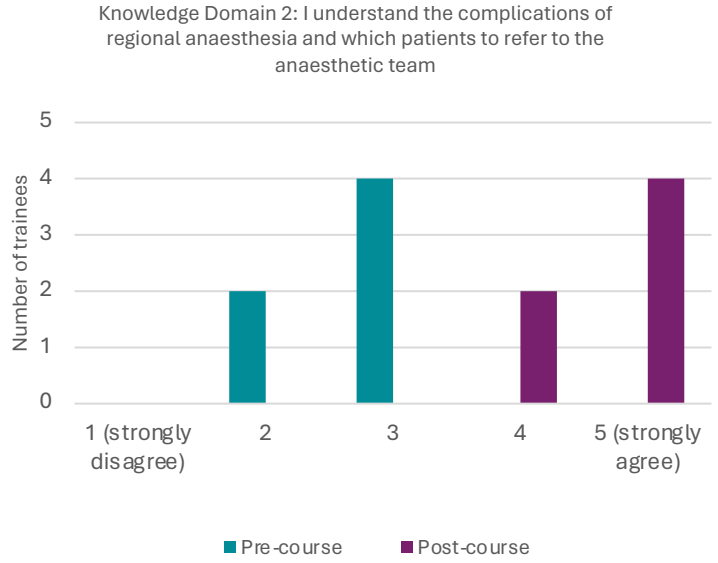
Six obstetric trainees (grades ST1-7) attended the full day course with an additional 15 attending the afternoon session remotely. Of the 15 online attendees, 11 returned feedback.

- 0% had previously received any formal teaching from an anaesthetist on obstetric anaesthesia
- 100% agreed that a yearly course would benefit trainees

Results from the full day delegates:

- 100% strongly agreed that the course had improved their knowledge of obstetric anaesthesia
- 100% strongly agreed that the course would assist them in their clinical roles
- 100% agreed or strongly agreed that the course would/would have assisted with MRCOG examination preparation
- 100% would recommend this course to a colleague
- 100% reported an improvement across all knowledge domains measured using a 5-point Likert scale





DISCUSSION

The positive feedback received for our inaugural course was encouraging, with the day enjoyed by both candidates and faculty. We plan to conduct this course annually and the faculty are keen to continue their involvement. Based on feedback received, the morning session will continue to deliver teaching in-person on the basics of obstetric anaesthesia with no changes to the content. The afternoon session will be delivered in-person and online, with clinically focused topics rotated on a yearly basis, serving as a regular update accessible to all O&G trainees in Northern Ireland.

Reference
1. Royal College of Obstetricians and Gynaecologists. MRCOG. Syllabus and Knowledge Requirements for Core Curriculum 2019.

INTRODUCTION OF CRITICAL CARE PROMPT COURSE IN THE SHSCT

Dr N McKeating CT2, Dr A Blair Consultant Anaesthetist SHSCT

INTRODUCTION

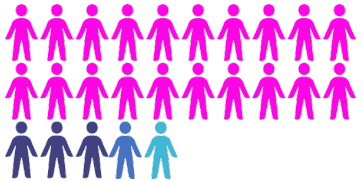
Critical Care Practical **O**bstetric **M**ulti-**P**rofessional **T**raining

This course was introduced in the SHSCT in November 2022. It was introduced on the background of advice from MMBRACE-UK (1), the RCOA (2) and departmental feedback regarding education needs.

HOW?

Beginning in 2022, half day sessions have been delivered every 6 months rotating between CAH and DHH sites. The initial course was comprised of 4 presentations and a practical workshop on arterial line management. Post course feedback is collected to tailor future courses to departmental needs.

WHO?



20 Midwives
3 Specialist Midwives
1 Critical Care Outreach Nurse
1 Obstetric SHO

INITIAL FEEDBACK AND CHANGES

In the post course feedback participants reported improved confidence in recognising critically ill patients. They highlighted equipment needs in the department to allow them to provide this care. Repeated feedback emphasised that refresher sessions would be welcome. However, they felt that the 4 presentations could be combined into 1.

Updated course:
One presentation encompassing cardiovascular, respiratory, neurological and infective complications and conditions in pregnant patients.

A practical workshop on managing arterial lines.
A presentation and group discussion on recognising and assessing a critically unwell patient. Further feedback was collected including self-reported confidence scores for key arterial line skills.

ARTERIAL LINE SKILLS CONFIDENCE

Blood sampling

Zeroing

Type of flush

WHAT'S NEXT?

Our next course aims to increase participation of the obstetric medical team. We also aim to move towards simulation-based teaching using a sim-mom.

Southern Health & Social Care Trust

References
1. MBRRACE-UK, Saving Lives, Improving Mothers Care; Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries in Maternal Deaths and Morbidity, 2023, Available at: https://www.npeu.ox.ac.uk/assets/downloads/mbrrace-uk/reports/maternal-report-2023/MBRRACE-UK_Maternal_Compiled_Report_2023.pdf
2. RCOA, Care of the critically ill woman in childbirth; enhanced maternal care, 2018, Available at: https://www.rcoa.ac.uk/sites/default/files/documents/2020-06/EMC-Guidelines2018.pdf

@ATICS_SHSCT

Northern Health and Social Care Trust

Do you actually regret the ones you don't put in?

CSE usage and implementation of intrathecal alfentanil as an adjunct for spinal anaesthesia in Antrim

S.Crawford (ST5), E.Gardiner (ST5), B.Haughey (ST7) K.Spence (Cons.)

Overview

Combined spinal epidural (CSE) are often used for caesarean deliveries. The majority of epidural components are not utilised (1). "It's always the ones you don't put a CSE in that you regret" is a common phrase uttered by anaesthetists, but do you really? We assessed the use of CSEs in Antrim Area Hospital (AAH) for elective sections followed by the introduction of intrathecal alfentanil as an adjunct to spinal anaesthesia (with hyperbaric bupivicaine/diamorphine) either as an alternative or in combination with a CSE.

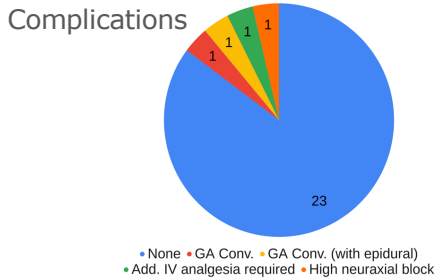
Data on the usage of CSEs was gathered including whether epidural top-up was attempted and any complications. IT Alfentanil (100-150mcg) was then promoted as an option in the department. Staff were encouraged to complete an audit form on its use.

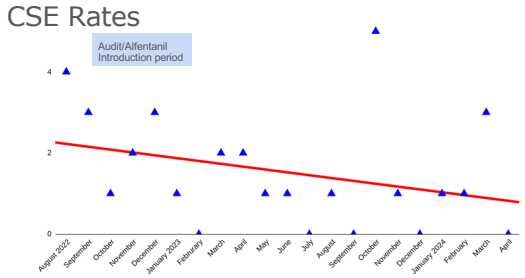
Our IT alfentanil guidance sheet:

Results

Twelve patients notes who received CSEs for elective section were reviewed. In two cases epidural top-ups were attempted, both prior to knife to skin and both proceeded to GA.

Following IT alfentanil introduction 27 audit sheets were returned. Two patients required GA conversion - one at knife to skin, one at pinch test. One of these patients also had an epidural sited and top-up attempted. There was a decrease in the number of CSEs performed despite increased workload with the relocation of Causeway maternity services to Antrim.





Discussion

The use of alfentanil is underrepresented in the audit forms as it is being used 15+/month (estimated by the controlled drug register) with only 27 forms being returned. This frequency of use represents extension beyond elective lists. One patient experienced high neuraxial block (not requiring intubation) which may be a consequence of the extra drug volume administered. However, when considering the widespread use of alfentanil not captured in the audit forms the incidence may not be dissimilar to the ~1% which has been previously reported in literature (2). The rate of requiring additional analgesia is within the normal incidence even without considering unreported uses of IT alfentanil (3). While there were two GA conversions these were felt to be unrelated to IT alfentanil – rather failed neuraxial block.

We speculated that in a DGH there may be limited need for CSE. Our project highlighted that despite epidural insertion there were still requirements for GA conversion. IT alfentanil is frequently seen in Northern Ireland however evidence to support its use is sparse. We feel this project has provided some objectively to its implementation. **Overall, there was a reduction in the number of CSEs, limiting unnecessary epidurals and associated risks without significantly impacting on complications**. This was despite an increased workload with the relocation of Causeway services in July 2023.

References:
1.Ranasinghe JS, Steadman J, Toyama T, Lai M. Combined spinal epidural anaesthesia is better than spinal or epidural alone for Caesarean delivery. Br J Anaesth. 2003 Aug;91(2):299-300. doi: 10.1093/bja/aeg596. PMID: 12878638.
2.Visser WA, Dijkstra A, Albayrak M, Gielen MJ, Boersma E, Vonsée HJ. Spinal anesthesia for intrapartum Cesarean delivery following epidural labor analgesia: a retrospective cohort study. Can J Anaesth. 2009 Aug;56(8):577-83. doi: 10.1007/s12630-009-9113-y. Epub 2009 Jun 5. PMID: 19499280.
3. Plaat F, Stanford SER, Lucas DN, Andrade J, Careless J, Russell R, Bishop D, Lo Q, Bogod D. Prevention and management of intra-operative pain during caesarean section under neuraxial anaesthesia: a technical and interpersonal approach. Anaesthesia. 2022 May;77(5):588-597. doi: 10.1111/anae.15717. Epub 2022 Mar 24. PMID: 35325933; PMCID: PMC9311138.

Routine Tranexamic Acid (TXA) use in elective LSCS – is it required?

McDowell M. ST4 Anaesthetics SHSCT
Blair A. Consultant Anaesthetist SHSCT

INTRODUCTION

In October 2022 a national alert was issued related to a shortage of available blood products. It was immediately recommended to reduce blood product use. During an Anaesthetic departmental meeting a decision was made to implement the routine use of Tranexamic Acid (TXA) in all elective and emergency caesarean sections (post-cord clamping) in SHSCT with the aim to reduce bleeding, and thus blood product usage. Evidence was based on the World Health Organisation's recommendation that women with clinically diagnosed post-partum haemorrhage (PPH) receive 1g of TXA intravenously [1]. The OAA issued correspondence highlighting the current evidence for use of TXA in PPH [2]. NICE also recommends that surgery with expected blood loss greater than 500mls should receive prophylactic TXA [3].

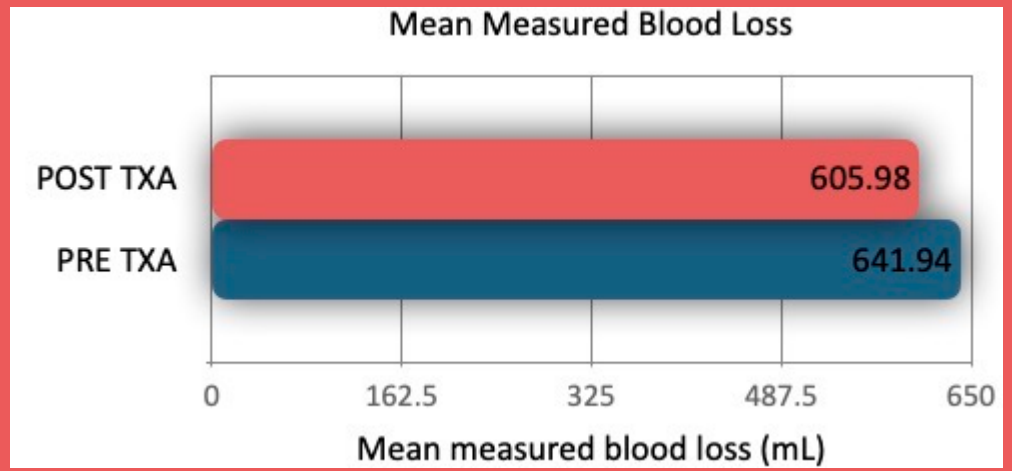
This project aims to assess the effectiveness of TXA at reducing blood loss and perioperative haemoglobin changes during our elective caesarean sections and to determine if routine use should be continued.

METHODS

We collected data from 100 patients prior to routine TXA use (October 2021-October 2022) and 100 patients with routine TXA use (October 2022-October 2023) undergoing elective caesarean section.

Inclusion criteria included elective caesarean sections performed in Daisy Hill Hospital (non-complex patients) whose anaesthetic chart was accessible via the online Anaesthetic Record. Lab results were accessed via Electronic Care Record (NIECR) to collect pre and post-operative Haemoglobin (Hb) levels. Discharge documentation via NIECR was used to gather measured blood loss. Mean Hb drop and mean blood loss were calculated and compared between the data sets.

Minimal difference observed in Hb drop and mean measured blood loss with TXA use in elective, non-complex caesarean sections



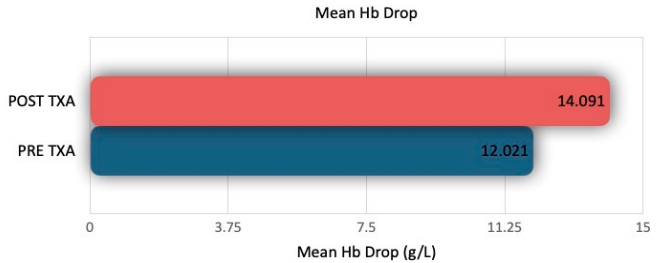
RESULTS

Pre-operative Hb was similar in both cohorts (116.4 vs 115.7).

Our results showed that the mean Hb drop prior to TXA use was 12.0g/L compared to 14.1g/L with TXA use.

Mean measured blood loss was 642ml prior to TXA use compared to 606ml with TXA use.

There was 6 (pre-TXA) vs 10 (post-TXA) patients diagnosed with PPH (>1000ml blood loss).



DISCUSSION

Our results show minimal difference in Hb drop and measured blood loss between the two data sets in non-complex elective patients. Unfortunately there is no statistical support in the SHSCT for more in-depth analysis of this data. We were able to identify that more patients in the TXA cohort (22 vs 4) were deemed well for discharge from hospital postnatally without a post-operative Hb check; these patients could not be included in the results for mean Hb drop.

We recognise this is a single-centre comparison with a small patient cohort. The data appears to echo conflicting results and inconclusive evidence for use of TXA in a low-risk population [4].

We have presented this data at our Anaesthetics / Obstetrics patient safety meeting and as a department have decided to cease routine use of TXA in elective caesarean sections for now. Since our data was presented, another meta-analysis has concluded that prophylactic use of TXA can significantly reduce blood loss in caesarean delivery [5].

For now, we continue to use TXA in PPH (as per AOA) and at the request of the obstetrician on discussion with anaesthetics. It will be interesting to see the future recommendations relating to TXA use in obstetric anaesthesia with further studies. The debate continues.

[1] WOMAN Trial Collaborators. Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage: an international, randomised, double-blind, placebo-controlled trial. Lancet. 2017 May 27;389(10084)
[2] Prophylactic tranexamic acid at delivery: if not now, when? Bamber J.H. IJOJ 2022 Feb 49; 103232
[3] NICE Quality Standard Blood Transfusion; QS138
[4] Tranexamic acid for the prevention of blood loss after ceserean section: an updated systemic review and meta-analysis of randomised control trials; Cheema H.A. Am J Obstet Gynecol MFM. 2023 Aug;5(8):101049
[5] Prophylactic TXA in Casarean delivery: an updated meta-analysis with a trial sequential analysis; Provinciatto H. Can J Anesth. 2024, 71 (465-478)

Obstetric Anaesthetic Management in Cases of Obesity

Victoria Rolleston
4th Year Medical Student
Queen's University Belfast

Southern Health & Social Care Trust

Introduction

This abstract is based on a complex obstetric case, which demonstrated the intricate anaesthetic management required in the context of obesity.

Description

- Patient with a BMI greater than 35kg/m2
- She developed pre-eclampsia during pregnancy and required an emergency Caesarean section
- Obesity presents significant challenges in the management of anaesthesia during C-sections, where physiological and anatomical changes in pregnancy further complicate the procedure.

Discussion

- Obesity creates a set of special considerations required for anaesthetic management within pregnancy and delivery
- 'Overweight' is defined as having a BMI over 25kg/m2, and 'obese' is a BMI is over 30kg/m2
- The WHO estimates that by 2030, there will be one billion people globally living with obesity, split into 1 in 5 women and 1 in 7 men[1].
- Elevated BMI places women at greater risk of complications in pregnancy, such as **hypertension, needing a C-section delivery, preterm delivery, increased maternal and fetal mortality, and increased birth weight, placing the infant at greater risk of shoulder dystocia[2]**
- Increased BMI increases the risk of complications during a C-section delivery
  - **Higher incidence of DVT, pyrexia, wound infection, endometritis and longer hospital stay than women who had a normal BMI[2]**
- There are also anaesthetic implications for the patient
  - The combination of pregnancy and obesity put great physiological stress on the mother. Both total and functional residual capacity are reduced, and work of breathing and V/Q mismatch are increased
  - Decreased cardiac output in addition to an increase in total circulating volume, which causes the heart rate to increase to compensate
  - Obesity further increases the strain on the heart – for every 100g of fat deposited, the cardiac output can decrease by 30-50ml/minute
- Pharmacokinetic alterations require careful dosing adjustments and consideration of drug distribution in adipose-rich tissues, influencing the use of anaesthetic agents
- Obesity can cause difficult airway management and laryngoscopic viewing, and an increased risk of aspiration and regurgitation
- There are also practical considerations
  - **Adequately sized blood pressure cuffs, the availability of bariatric beds and operating tables, difficulty obtaining knee-chest position for epidural administration, difficulty in locating the anatomical spaces for spinals and epidurals, long spinal and epidural needles, difficult IV access and the need for sufficient numbers of staff and equipment for safe moving and handling**
- An MDT approach to these cases is essential, and individualised pre-operative planning should be ensured, where possible. Awareness of these considerations within the operating room can ensure that these women do not feel alienated and receive an optimal standard of care. The overarching goal remains the optimization of maternal and neonatal outcomes, ensuring safety throughout the peripartum period in this high-risk population.

Acknowledgements

I would like to thank Dr Alison Blair, consultant anaesthetist, for introducing me to the NIOAN and giving me the opportunity to submit the case discussion

References

1.Lobstein T. World Obesity Atlas 2022 [Internet]. World Obesity Federation. 2022 [cited 2024Mar27]. Available from: https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2022
2.Saadia Z. Association Between Maternal Obesity and Cesarean Delivery Complications. Cureus. 2020 Mar 2;12(3).