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Abstracts

3386731

Continuous Quadratus Lumborum Block For Revision Total Hip Arthroplasty: A Case Report

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Introduction
Quadratus lumborum (QL) block has been described as an analgesic technique for abdominal surgery.[i],[ii] Local anaesthetic injected at the anterior edge of the QL muscle results in T5-L1 dermatome anaesthesia due to spread to the paravertebral space.[iii,iv] Furthermore, transversus abdominis plane block has been used to provide anaesthesia for hip hemiarthroplasty.[v] We present a case and provide the technical description for continuous QL block in hip surgery.

Methods
A 57 year-old man was booked for a second revision of total hip arthroplasty. He had a history of chronic hip pain, osteoarthritis and narcotic dependency. Baseline pain scores were 8/10 (rest) and 10/10 (activity).
Usual medications were continued peri-operatively. The patient was positioned onto the lateral position and the L3 transverse process was identified on ultrasound. A Touhy needle was passed in a medial-to-lateral direction (Fig A) using the transmuscular 'QL-3' approach (Fig B).[vi] Twenty millilitres of 0.5% ropivacaine was injected and a FlexTip® catheter was passed and secured at the skin (Fig C). Ropivacaine 0.2% was then infusion at 10mls/hr with a 4ml bolus and 30minute lockout. This continued for 48 hours post-operatively.

Results
Twenty minutes after the block, loss of cold sensation was observed over T12-L2 dermatomes (Fig D). Intraoperative analgesia consisted of sufentanil 25mcg and ketamine 40mg. Postoperatively the patient was given multimodal analgesia and additional breakthrough pain was treated with oxycodone 20mg q4 hourly. His pain score was 3/10 at rest and 5/10 on movement in PACU, and on day 1 his pain scores were between 0-4 at rest and 3-6 on moving with physiotherapy. His pain was well controlled having received two doses of oxycodone on both day one and day two. The pump bolus was used 5 times over the 48-hour period. Physiotherapy assessment noted no weakness of hip flexion or knee extension as a result of the block.

Discussion
An anatomical space exists between the anterior thoracolumbar fascia (QL fascia) and the posterior endoabdominal fascia. This space contains the L1 and L2 nerves. Local anaesthetic injected in this space will block the iliohypogastic, ilioinguinal, genitofemoral and lateral femoral cutaneous nerves. The fascial plane also extends medially so that an injectate of sufficient volume could divide the fascial layers between the psoas major muscle anteriorly (containing femoral and obturator nerves) and the transverse process with paravertebral contents posteriorly.

Conclusion
A narcotic dependent patient was successfully managed using continuous QL block analgesia for revsion hip arthroplasty.

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3392738

Using Soft Power To Invigorate A Fascia Iliaca Compartment Block (FICB) Service At The Countess Of Chester Hospital (CoCH)

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Introduction

NICE guidance[1] on neck of femur (NOF) fractures states "Consider nerve blocks for additional analgesia or to limit opioid dosage". The AAGBI guideline[2] states "Consider intraoperative nerve blocks for all patients undergoing surgery". At the CoCH a policy has been in place since 2011 to enable trauma nurses to administer FICB. One trauma nurse has completed training and in the three months since she started performing FICB in April 2014, 13/111 (11.7%) patients admitted with NOF fracture received a FICB.

To increase the provision of FICBs between August – November 2014:

- Presentations of benefits of preoperative and perioperative FICB were delivered at various anaesthetic departmental meetings
- FICB presentation delivered at acute pain study day for nurses
- New intake of CT1 anaesthetists were taught to perform FICB

Methods

A retrospective audit including all patients presenting to the COCH with NOF fracture in November-December 2013 and November-December 2014. The proportion of patients having preoperative FICB or perioperative peripheral regional anaesthesia were compared using X^2 test. Morphine consumption in the 24 hours following admission was compared using the Mann-Whitney test.

Results

Fifty patients were analysed from 2013 and 37 from 2014. 79% were female, median age was 83 years. Median (interquartile range [IQR]) total morphine dose in the first 24-hours was 4.75 (1.31-8.12) mg in 2013 vs. 8.8 (2.3-15.3) mg in 2014. (p=0.0031) A significantly increased proportion of patients had FICB considered (2.6 [0.1-15.4] % vs. 36.0% [18.7-57.4] %. p=0.00028), requested (0% vs. 36.0% [18.7-57.4] %. p=0.00004) and performed (0% vs. 36.0% [18.7-57.4] %. p=0.00004) when contraindications were absent in 2014 compared to 2013. Total number of regional anaesthetic techniques increased (p=0.01578) with no difference in the use of blocks as part of the anaesthetic technique (p=0.97)

Discussion

The significant increases suggests that the interventions may have had an effect. Whenever requested, FICB were provided, implicating that demand doesn't outweigh supply. In 2014 patients received significantly more opioids than 2013, it is not clear why this was but may in part explain the increased prevalence of FICB. The total number of local or regional anaesthetic techniques increased significantly in 2014 when compared to 2013. This increase can be attributed entirely to an increase in pre-operative FICB for analgesia.

Conclusion

Soft power and the involvement of anaesthetic trainees can improve demand for a regional block service yet still provide supply beyond that demand. More FICBs may be able to be performed within the constraints of the current service model.

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3399117

Rhabdomyolysis Following Spinal Anaesthesia In An Obese Patient For Day-case Knee Arthroscopy

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Introduction
A 66 year-old male was scheduled for day-case left knee arthroscopy. The patient had a history of controlled hypertension but was otherwise well. He weighed 121kg with a body mass index of 46.1kgm^{-2}.
The procedure was carried out uneventfully under subarachnoid blockade (SAB) with 3.0ml 0.5% hyperbaric bupivacaine. The patient was transferred sitting upright to the post-anaesthetic care unit on a trolley with a pressure-relieving mattress. He remained in this position for 6½ hours, when he transferred into a chair. He then complained of right buttock pain requiring opioid analgesia and was reviewed by the anaesthetic CT2, who documented a normal neurological examination. The patient was unable to mobilise because of this pain and was admitted as an inpatient for analgesia and physiotherapy.

An anaesthetic review was requested the following day as the patient was still complaining of buttock pain. On examination there were no neurological signs but the right buttock was swollen and exquisitely tender. A creatine kinase level was checked and revealed a plasma level of approximately 6000 unitsL^{-1}, however renal function remained normal throughout his admission. An ultrasound scan of the buttock did not reveal any abnormality. A diagnosis was made of rhabdomyolysis of the gluteus secondary to prolonged immobility following SAB, and the patient was eventually discharged on the third postoperative day.

Discussion
Rhabdomyolysis is well recognised in patients following surgery in the prone position and those having long bariatric procedures, where the incidence increases with BMI (1). However it is generally associated with intraoperative immobility; there are no case reports of rhabdomyolysis associated with postoperative immobility due to SAB.

This patient’s weight of 121kg was well within the 250kg limit of the trolley but the size of the trolley meant that checking pressure areas and turning the patient was impracticable. His upright position would have placed maximum pressure on the insensate gluteal muscles for a prolonged period and the ‘pressure-relieving’ mattress may have provided false reassurance that turning the patient was unnecessary. A lack of confidence with mobilising patients after SAB may also have delayed mobilisation.

Conclusions
SAB is attractive for day-case procedures in obese patients but it is not without complications. We must ensure that the trolley/bed is large enough to allow repositioning of obese patients and discuss this with nursing colleagues. We should remember that patients on pressure-relieving mattresses can develop pressure-related complications and we should give clear guidance on mobilising patients after SAB.

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3406857

Regional Anaesthesia Is Not Just For Acute Pain

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Introduction

We wish to present our experience where we used regional anaesthesia as a part of treatment of chronic pain. We want to demonstrate regional anaesthesia is a transferrable skill. We want to present a patient with Chronic Regional Pain Syndrome (CRPS) who has had a regional nerve block with good results.

Case Report

A 50 year old woman presented to hospital with a fracture of her wrist after suffering a fall. She had a manipulation under anaesthesia and a fracture clinic appointment two weeks later. She was referred to the pain clinic five months later after developing clinical features of CRPS type 1 including allodynia, hyperalgesia, loss of muscle mass in her thenar and hypothenar muscles and hyperhydrosis. She consented for peripheral nerve blocks at fortnightly intervals to facilitate physical therapy. She had 6 courses of peripheral limb block of her left forearm where the radial, ulnar and medial nerve was blocked individually in the operating theatre and passive physiotherapy in the recovery area. She since has had good pain relief, return of muscle power and bulk and improvement in trophic changes in her affected limb.

Summary:

We now believe the regional nerve block contributed to the good outcome.

Discussion

The pathophysiology of CRPS includes inflammation, central and peripheral nervous system desensitization, sympathetic system malfunction and imbalance between sensory and motor nervous systems of the affected area. The management algorithm is multi-disciplinary including physical therapy, oral medication, intravenous regional blocks, cognitive behavioural therapy and spinal cord stimulation. The limb block helped reset the sensory-motor imbalance. We hypothesize that regional nerve blocks work by acting on the desensitization at the central and peripheral nervous system. Intravenous regional blocks involve injecting potentially large doses of cardiotoxic drug into the circulation and the application of painful tourniquets into an already hypersensitive area of the body. In comparison, regional blocks are safe and easier to perform after the advent of real time ultrasound guidance.

Conclusion:

It is possible that as pain practitioners become more familiar the acceptance of this technique would increase. There is only weak evidence for intravenous regional blocks and physical therapy. Further studies with larger groups of patients are needed.

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3407464

Early Prediction Of Severe Post-surgical Pain Using "Double APS" Screening Tool In The Pre-operative Assessment Clinics

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Introduction

There is a nationwide move towards enhanced recovery after surgery to reduce the length of stay and improve patient experience. The most important factor that facilities this is effective pain management. Though there are various protocols and pathways available in the perioperative care of the patients, one-size-fit approach to pain management results in suboptimal pain control[1]. Identifying the patients at risk of severe post-surgical pain will help us plan a better perioperative pain management. The perioperative model[2] of RCoA also emphasises this. We proposed to design a simple scoring system that can be used in the pre-assessment clinics to predict severe post-surgical pain.

Method

The systemic review[3] on predictors of postoperative pain and analgesic consumption has identified age, anxiety state, pre-existing pain and type of surgery as four main factors for severe postoperative pain. Age has negative correlation with pain intensity. Anxiety and preoperative pain (Numeric rating score, NRS>4) are found to be strong positive predictors of postoperative pain. Regarding surgical factors certain surgical type like abdominal, orthopaedic and thoracic surgeries are associated with increased pain. Emergency surgery, cancer surgery and long duration of surgery have been correlated with increased analgesic consumption. In addition psychological distress (exaggerated emotions and fear of worst outcome) and sensitivity to opioids (opioid intolerance, poor cardio respiratory and renal reserve) are associated with poor pain control. Using these factors, we devised a simple scoring system with an acronym "Double APS", which also stands for Acute Pain Service.

Results

"Double APS" screeing tool

Characters	points
Age<60	1
Anxiety levels high (fear of surgery, previous bad experience)	1
Pre-operative pain (moderate to severe pain, NRS>4)	1
Psychological distress (depressed mood, exaggerated emotions)	1
Surgery type (major abdominal, orthopaedic, thoracic and cancer surgery)	1
Sensitivity to opioids (opioid intolerance, poor cardio respiratory or renal reserve)	1

The patients with 3 or more risk factors are categorised into high risk and those wth less than 3 factors are considered low risk for severe post-surgical pain.

Discussion

The risk stratification using "Double APS" screening tool at the pre-assessment clinic is a simple and easy way to predict patients who need specialist pain input by the multidisciplinary team. Having them seen by the consultant at the pre-assessment clinic and early referral to acute pain service will lead to better perioperative management ensuring speedy recovery. This is not a validated tool and we are planning to trial this in our pre-assessment clinics for patients undergoing Orthopaedic surgery.

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3407547

Unplanned Admissions For Foot And Ankle Day Surgery - Is Regional Anaesthesia Complementary Or Contributory?

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Introduction
Foot and Ankle list is predominantly done as day case in our trust. We noticed a recent surge in the number of unplanned admissions following this list. Unplanned admissions are not only inconvenient to the patients but also cause pressure on beds in an acute hospital. We wanted to find out the reasons for these unplanned admissions and look for any anaesthetic contributing factors. The RCoA audit recipe book sets standards for day case unplanned admissions as <2%.

Method
We conducted a retrospective audit and looked at the number of day case foot and ankle surgeries performed in our trust between the two hospitals for 2015. We noted the number of unplanned admissions for this list in 2015. Data were collected regarding Patient demographics, nature of surgery, time of surgery, anaesthetic details and reason for unplanned admission for these patients.

Results
There were 783 patients listed as day cases in Foot and Ankle surgery, of which 38 patients had unplanned admissions (4.8%). The patient demographics for these unplanned admissions were found to be predominantly female(63%)and were ASA 2 (52%). 34 (89%) of them have had GA with or without blocks and 4(11%) were done under regional anaesthesia (3 spinals and 1 popliteal sciatic block). Among those who have had GA 25 (74%) had regional procedure for pain relief (13 Ankle blocks, 8 popliteal sciatic block and 4 combined popliteal sciatic and saphenous block). Regarding time of surgery 16 (42%) of them were done later in the day, not allowing time for physiotherapy input to ensure safety for discharge. There were 22 (58%%) patients who had anaesthetic reasons for unplanned stay.

Reasons for unplanned admissions

Reasons	Number of patients
PONV	4 (10%)
Pain control	7 (18%)
Allergy	1 (2.5%%)
BP control	1 (2.5%%)
Unsafe to mobilise owing to numbness and weakness	8 (21%)
Chest pain	1 (2.5%)
Bleeding	4 (10%)
Surgical	5 (13%)
social	2 (5%)
N/A	5 (13%)

Discussion
Our results showed that unplanned admissions exceeded the recommended target (<2%). There were far more anaesthetic reasons. This included both patients who had poor pain control and also those suffered weakness and numbness secondary to the block making them unsafe to mobilise and hence discharge from day case. Regional anaesthesia is essential part of the anaesthetic for the foot and ankle procedures. Though majority of the patients recieved some form of ankle block they were not all done with ultrasound guidance. Also choosing the correct regional technique is important as some patients had received popliteal sciatic block for just forefoot surgery. We plan to disseminate the results of the audit to the department and also organise ultrasound guided ankle block tutorial to make sure everyone uses the right technique and choose the right choice of regional technique. We also plan to re audit this in 6 months time to look for change of practice.

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3408564

A Case Report Of The Use Of Ultrasound-Guided Pectoral Nerve I And II Blocks For Awake Breast Cancer Surgery.

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INTRODUCTION
An introduction of Pectoral Nerve Blocks (PECS) by Blanco offered simple yet effective regional technique to provide effective analgesia[1] for breast procedures. PECS blocks have been mainly described as an addition to general anaesthesia[1]. We describe the utilisation of an ultrasound guided PECS 1 and 2 on a 81 year old ASA 2 patient, presenting for day-case wide local excision. The patient requested to be awake for her procedure. She feared a general anaesthetic (GA), to the point of refusing surgery if she had to have a GA despite having a malignant breast carcinoma.

METHOD
The PECS 1 and 2 block was performed under TCI propofol sedation at 0.3mcg/ml target, with routine monitoring and oxygen in place. The patient was positioned in a semi-recumbent position, with her shoulder abducted and elbow flexed (both 90 degrees). Under aseptic conditions, the skin was infiltrated with 5mls of 1% Lignocaine and the Pectorals Major (PMM), Minor (PmM) and Serratus Anterior (SAM) muscles were identified using the Sonosite Edge with 13Mhz linear probe at the level of 4th rib. Using an in-plane approach, an 18 gauge, 90 mm SonoTAP Tuohy was positioned in the plane between SAM and PMM. Following confirmation of location using a 0.9% saline “seeker solution” and negative aspiration, a satisfactory spread of 20mls of 1% Prilocaine/0.5% L-bupivacaine (50:50 mix) was observed. The needle was subsequently withdrawn under ultrasound guidance and further 10ml of the same mix was administered in the plane between PMM and PmM from a 30ml syringe attached.

RESULTS
Surgery commenced 33 minutes after the PECS 1 and 2 block and lasted for 58minutes. The patient reported no pain during the procedure, maintaining verbal communication throughout. She went home 4 hours after completion of the surgery. She received 250mg of paracetamol in recovery, with further 250mg home self administration. She had no nausea despite no routine antiemetics. She was extremely satisfied with her care.

CONCLUSION
PECS 1 and 2 blocks facilitated by ultrasound guidance can provide satisfactory surgical anaesthesia for the patients undergoing wide local excision. They also provide excellent post-operative analgesia, reducing/ avoiding opiates.

DISCUSSION
This case report demonstrates that PECS blocks are able to provide excellent surgical anaesthesia as well as analgesia. This could give a surgical option for patients either unwilling or unfit for GA, particularly important in cancer patients. Additionally they increase the available options for facilitation of early discharge by avoidance of opiates and their side effects [2], increasing the potential for day case surgery[3].

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3425132

Use Of A Pain Screening Tool To Determine Optimal Enhanced Recovery Protocol For Knee Arthroplasty

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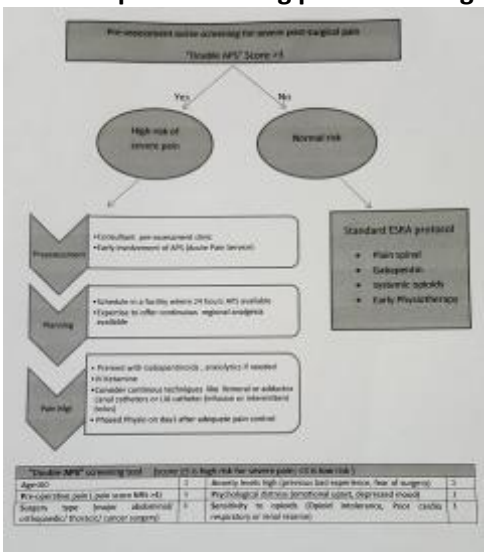
Introduction

Total knee arthroplasty is a common surgery performed in most hospitals. Nearly half of the patients suffer with moderate to severe postoperative pain following knee replacement[1]. There are several patient factors that could predict the postoperative pain before surgery. Identifying these in the pre-assessment using a simple screening tool could facilitate planning of optimal perioperative care[1,2]. A tailored perioperative pain management can then be instituted in the right facility using regional anaesthesia, NMDA antagonists, Gabapentinoids instead of standard protocol.

Method

Based on the systemic review and meta-analysis[3] we designed a new screening tool "Double APS" to predict patients who could develop severe postoperative pain. The factors considered in the tool are shown in the table in the figure. The patients with 3 or more predictive factors were classed as high risk and a modified approach was suggested for enhnaced recovery. These patients will be seen in the consultant pre-assessment clinic and may be referred to acute pain team prior to the scheduled date of surgery. The operation is listed in a facility with 24 hour acute pain service and an anaesthetist with skill and expertise to perform regional anaesthesia. The modifications to enhanced recovery include consideration for analgesic/ anxiolytic premedication, use of regional techniques such as continuous femoral or adductor canal block. These patients are mobilised in a phased manner from sitting out on Day 1 to aided walking on Day2 when the postoperative pain is under control.

Modified protocol using pain screening tool



Discussion

Enhanced recovery has revolutionised the field of surgery owing to various benefits to both hospitals and patients including quality, cost and reduced length of stay. These benfits are not met in patient groups who suffer severe pain giving them unpleasant experience, further leading to develop persistant chronic pain. The one size-fit-all model should be modified with use of multimodal and regional analgesia. We are planning to pilot this modified enhanced recovery protocol in our trust for the knee arthroplasty to see the benefits.

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3425509

Regional Anaesthesia: Patient Information Video

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Introduction
The benefits of regional anaesthesia (RA) over general anaesthesia are well known- avoidance of airway management and superior analgesia over opioids. That said, patients can find the thought of awake surgery daunting. Patients are told their anaesthetic options at clinic or on the day of surgery, leaving them little time to process the information and discuss their options, leading to increased anxiety and refusal of RA without understanding the intended benefits. At University Hospital Southampton we produced a video to provide patients with information pre-surgery on RA.

Methods
We trialled the video by showing it to patients after their surgery. We sent them an email link to the video and then followed them up with a telephone questionnaire.

Results
We had a response rate of 66% over 6 months. 100% of patients felt that the patient journey, risks and benefits of RA and type of anaesthesia were important to know prior to surgery. 88% felt that when they could go home and resume normal activities were important to know. 94% of patients knew that RA was a type of anaesthetic although only 31% knew sedation could be given. Only 50% knew RA was an analgesic. Specifically for a regional block, all patients wanted to know if the block would hurt, if they would be asleep or awake and the intended risks and benefits of the block. 75% of patients wanted to know common risks of the block (<1:1000) with one patient wanting to know rare risks (>1:1000). All patients wanted to know when they could eat and drink postoperatively, who to contact for help or advice and instructions after surgery. 94% wanted to know how long the block would last. 94% said that the video content was relevant and representative of their journey. 94% thought the video was clear, correctly paced, an appropriate length and would have been helpful to view prior to attending for surgery.

Discussion
General feedback was positive, but some constructive comments included: 'more diagrams needed', 'needed more information' and 'the blue writing was difficult to read'. Consequently, we have slightly altered our video. Interestingly, many of the patients were unaware that RA with sedation was an option and that local anaesthesia was an analgesic. This shows a potential lack of knowledge within the general public, hence the need for more information.

Conclusion
We are now in the process of rolling the video out to patients undergoing RA for upper limb surgery at our trust. This will be shown prior to their preoperative assessment so they have ample time to take in and discuss their anaesthetic. We will get further feedback so we can continually reassess the quality and content of the video.

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3426782

Ultrasound Guided- Ankle Block Compared To A Nerve Stimulator Guided- Ankle Block For Analgesia After Foot Surgery A Prospective Randomised Double Blind Study

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Ultrasound guided Ankle block compared with Nerve stimulator guided block for analgesia after foot surgery.

This study was patient and observer blinded, randomised, prospective study done in 60 patients who undergoing bone cutting medial forefoot surgery. They received either block under sedation. Procedural time to complete the block and the evolution of sensory and motor changes were recorded.
Following surgery under general anaesthesia, quality and duration of pain relief were also recorded.
The mean time taken to complete ultrasound guided blocks was 9 minutes longer than for nerve stimulator guided blocks ($p<0.001$). Five patients in the nerve stimulator group required further local anaesthetic to complete the block as compared to none in ultrasound guided group ($p<0.05$). There was no statistically significant difference in block duration or in block onset time between the two groups.
Ultrasound guided approach resulted in a more reliable block but it took longer to perform.
sed combines a tibial nerve block together with a deep branch of the common peroneal nerve and a superficial branch of the common peroneal nerve that are described separately in the literature[4 8 9].
This study aims to examine the differences between NSG and USG blocks for pain relief after forefoot surgery. The primary outcome measure studied was procedural time and the secondary outcome measures included block reliability and the duration of pain relief.

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3426819

Deranged Clotting In A Patient With Epidural For Labour Pain Relief - A Diagnostic Dilemma

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Introduction

Epidural is a widely used mode of labour pain relief and the incidence of permanent harm[1] including epidural hematoma is very negliglible. The risk factors for epidural hematoma are clotting disorders and drugs[2] affecting clotting. We report a case where deranged clotting was detected in a labouring women with epidural in situ.

Case report

31 year old female presented in spontaneous labour at 39+2 weeks. This was her eighth pregnancy having had previous 6 miscarriages and 1 termination. The patient had history of postural atrial tachycardia syndrome and was on beta-blockers. The patient also had list of allergies including latex, penicillin, seafood, morphine and codeine. Antenatal period was uneventful and was treated with aspirin 75mg and enoxaparin 40mg for DVT prophylaxis. During labour, patient requested for an epidural analgesia. The last dose of enoxaparin was taken 19 hours ago and the platelet count was $172x10^9$/L when the epidur was attempted and sited successful on the second attempt. The test dose was negative and epidural was commenced using the trust protocol (Patient controlled epidural with bolus of 10ml, 20minutes lockout and no background infusion using Bodyguard 545) with 0.1%levobupivacaine and fentanyl 2mcg/ml mixture. Two hours later the patient was asked to review, as there was oozing from the epidural site. On examination the patient was comfortable, moving both legs but there was oozing from 1st puncture site in the back. Urgent clotting was requested which came as grossly abnormal (PT 24sec, aPTT 38sec and fibrinogen 7.2g/L).

Management

Senior Obstetrician and Anaesthetist were involved and Duty of Candour was followed, patient was informed of the risk of deranged clotting and epidural. Hematologist opinion obtained and urgent bloods were sent for liver function test and crossmatch, 4units of FFP were requested and 10mg of vitamin K was given to the patient. The Liver function test was deranged with ALT of 758u/L and Bilirubin of 27micromol/L. Differential diagnosis of Acute fatty liver or atypical HELLP was made. Decision was made to deliver the patient in theatre with the team prepared to manage Major haemorrhage. Patient was transfused 4 units FFP and successfully delivered by trial of forceps. The baby was born in good condidtion and the blood loss was less than 500ml. The patient was carefully followed up with repeat bloods and the epidural catheter was removed 10 hours after when the clotting became normal. The liver functions improved gradually and patient made uneventful recovery.

Discussion

This case highlights familarity with clotting disorders in pregnancy[3] and multidisciplinary team working result in good outcome.

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3426960

Medial Forefoot Block Study- Comparing 0.5% Levobupivacaine And 0.75% Levobupivacaine

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Introduction
Medial forefoot operations such as metatarsal osteotomy and cheilectomy are common, painful day case procedures. Regional anaesthesia can provide good intraoperative and postoperative pain relief. Prolonged block can enhance patient's overall experience. The purpose of our study was to find if 0.75%levobupivacaine produces a longer block in comparison to 0.5%levobupivacaine and improves patient experience.

Methods
Standards used were successful block and analgesia for longer than 8 hours. All patients had IV sedation and ultrasound guided ankle block comprising tibial nerve (10mls), superficial peroneal (5 mls) & deep peroneal (5 mls) nerve block at malleolar level using 20 mls of local anaesthetic in total followed by general anaesthesia. Pain scores were assessed and treated appropriately in recovery. Postoperatively time of first analgesia and patient experience regarding the block was assessed in the ward or by telephone if discharged.

Results
Our cohort had 30 patients in total with similar demographical features, with 14 patients in 0.5% levobupivacaine and 16 patients in 0.75% levobupivacaine group. Analgesia lasted > 8hrs in 12/14 (86%) in 0.5% levobupivacaine group and 16/16 (100%) in 0.75% levobupivacaine group. Successful block 13/14 (93%) in 0.5% and 16/16 (100%) in 0.75% levobupivacaine group. 28/30 (93%) patients described their experience as good or excellent. Details of the block duration can be seen in the Table1.Statistical analysis of the same with student 't' test showed significant difference between the two groups with p value of < 0.026
Block Duration

	0.5% Levobupivacaine	0.75%Levobupivacaine
Range	4-18 hours	9-24 hours
Mean	11.6 hours	15.2 hours
Standard Deviation	3.59 hours	4.82 hours
Standard Error of Mean	0.96 hours	1.2 hours

Discussion
Levobupivacaine is the most recent local anaesthetic in our practise and it is less cardio toxic than racemic bupivacaine. Our study compared different concentrations of levobupivacaine and has shown prolonged duration of action with increasing concentration. There are other studies showing the reduction in the onset time & increase in duration of nerve block demonstrated with 0.75% levobupivacaine as compared to the 0.5% concentration are reasonably related to the increase in the total dose injected [1].Duration of pain relief was considered to be more important as the patient satisfaction was dependent on it.

Conclusion
Our study has shown that 0.75% levobupivacaine provides prolonged analgesia in comparison to 0.5% levobupivacaine which will improve the patient satisfaction but care should be taken to avoid local anaesthetic overdosing.

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3427029

Ultrasound Guided Adductor Canal And Posterior Capsule Infiltration Of Local Anaesthetic As Part Of An Enhanced Recovery Programme For Total Knee Arthroplasty

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Introduction
Total knee arthroplasty (TKA) is associated with moderate to severe pain. Regional anaesthetic techniques have been shown to minimise side effects of commonly used opiate analgesics [1]. When compared to popliteal sciatic block, or femoral block with posterior capsule infiltration (PCI), a combination of adductor canal block (ACB) and PCI may provide a more predominantly sensory block [2,3]. The aim of our audit was to evaluate ACB as part of our TKA enhanced recovery programme.

Methods
We carried out a prospective audit (April to May 2015) where patients were offered the standard Sunderland ERP for TKA: spinal anaesthesia (0.5% L-bupivacaine) with ultrasound guided ACB and PCI (20mls of 0.25% L-bupivacaine each site). Primary outcome measures: length of hospital stay (LoHS) and time to independent mobilisation. Secondary outcome measures: maximum and minimum pain scores (days 0-2), opiate consumption, patient satisfaction. Results were analysed descriptively and compared with a previous local audit data.

Results
We collected data for 51 patients. Results pertaining to primary and secondary outcome measures are categorised below:

a. **LoHS**- The mean LoHS was slighter higher in the intervention group of 4.1 days when compared to the standardised group of 3.6
b. **Time to independent mobilisation** - 78% of patients in the intervention group mobilised on day 1 (35% standardised group). 49% were independently mobile by day 1 postoperatively (4.8% standardised group). There was no difference between the 2 groups by day 2
c. **Pain scores** – Although pain scores in the intervention group were marginally higher (6.9 vs 5.9 on day 1), 82% of patients in this group rated their pain relief as satisfactory or better.
d. **Opiate consumption** - Morphine consumption was considerably lower in the intervention group on days 1 (4.4mg) and 2 (3.0mg), standardised group: 8.8mg and 5.1mg respectively.

Discussion
Postoperative pain management is an important component of perioperative care and one that if inadequate can lead to delayed postoperative rehabilitation and discharge, which can have a significant impact on the patient and service alike. The inclusion of a predominantly sensory block, ACB and PCI under ultrasound guidance as part of the ERP may have significant advantages when compared to previously established techniques.

Conclusion
This audit demonstrates that performing an ACB, in combination with PCI, may allow earlier ambulation and reduce overall opiate consumption. Interestingly early mobilisation (49% vs 4% on day 1) did not equate to a reduction in LoHS. The reasons for this require further investigation.

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3427049

ASAP Recommendations-Are These Realistic For Implementation? A Closed Audit Loop On Perioperaive Care For Proximal Hip Fractures Adherence With AAGBI Standards.

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Introduction:
Anaesthesia Sprint Audit of Practice (ASAP) aimed to profile individual hospitals' compliance with standards of perioperative care described by Association of Anaesthetists of Great Britain and Ireland (AAGBI) guidelines for management of proximal hip fractures[1]. This audit is the second audit in the audit loop to outline our department adherence to AAGBI standards.

Methods:
Data were collected retrospectively from randomly selected 26 patients who underwent surgeries for proximal hip fractures during July 2015 and compared to the first audit done in 2013.

Results:
Service was 100% consultant based compared to 92% in 2013. Spinal anaesthesia was the mode of anaesthesia in 54% of patients of which 9% received <10 mgs of hyperbaric Bupevacain, 100% had Fentanyl as intrathecal opioid, O2 was provided in 100% of cases and in 66% sedation was limited to Propofol or Midazolam compared to 5%, 11%, 25% and 55% in 2013 respectively. Regarding patients who had General Anaesthesia, none of them had inhalational induction or combined general plus spinal anaesthesia and 45% were breathing spontaneously in 2015 compared to 47%, 6% and 47% in 2013 respectively. Peripheral nerve blocks were done in 75% compared to 81%. Relative hypotension was avoided in 47% compared to 3%. No risk assessment for bone cement implantation syndrome (BCIS) was recorded for any of the patients in 2015 compared to 6% in 2013.

Discussion:
This audit showed 100% adherence with AAGBI standards in providing consultant based service, using Fentanyl as intrathecal opioid, providing O2 during spinal anaesthesia and uncombining general and spinal anaesthesia along with significant improvement in avoiding relative hypotension. Although apparently there is no progress in using neuroaxial anaesthesia, 17% of patients had contraindications. Improvement of 10-15% occurred in limiting sedation to Propofol or Midazolam as well as considering nerve blocks. More efforts needed to encourage anaesthetists to consider inhalational induction for general anaesthesia, maintain spontaneous breathing and to keep records of BCIS risk factors.

Conclusion:
Low dose Spinal anaesthesia is accompanied with decreased incidence of Hypotension supporting the AAGBI standards. Supplemental nerve blockade helps to control perioperative pain and reduce perioperative opioids both of which prevent postoperative delirium. It also helps in moving patients into lateral position with the bad hip down which will reduce the volume of intrathecal bupivacaine necessary for spinal anaesthesia. Department of anaesthesia should raise awareness of BCIS risk factors. Finally, we have learnt and changed our departmental practice.

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3427193

Modified Radical Mastectomy Using Thoracic Paravertebral And PECSII Block Alone

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Introduction
There are increasing number of cases of breast surgery being performed under thoracic paravertebral blockade (TPVB), however if axillary work is involved then the cover from TPVB alone is often not adequate. We present the use of TPVB and PECS2 block to provide GA free cover for modified radical mastectomy (MRM).

Methods
Case series of four women undergoing MRM received ultrasound guided TPVB and PECS2 block for surgical anaesthesia. The women initially received midazolam and fentanyl for sedation prior to placement of the block. They were firstly positioned in the sitting position for the TPVB. An 18G Tuohy needle was used at the T3/T4 level with the ultrasound probe in the caudal cephalad orientation, using a paramedian approach. The TPVB dose used was 10ml 0.5% L-bupivicaine and 10ml lidocaine 2% with 1 in 200,000 adrenaline. Following placement of the TPVB the patient was positioned supine for the PECS2 block. For this a 22G 80mm stimuplex ultra needle was used to give 25-30mls of 0.25% L-bupivicaine. During surgery they received sedation using 1% propofol with 20mcg/ml of remifentanil using TCI propofol programme targeted to BIS of 75-90 to give conscious sedation.

Results
None of the patients required intraoperative LA supplementation nor complained of discomfort during axillary clearance. As they had avoided a general anaesthetic there was a low incidence of nausea and vomiting in recovery, pain scores in recovery were good and they were all fit for discharge on the same day.

Discussion
Simpson et al in 2014 presented a case series of 28 patients successfully undergoing breast surgery under TPVB and sedation alone (1). The patients that did require rescue opioid analgesia in recovery were all the patients that needed axillary clearance. Supporting work by Bashandy et al showed that the use of PECS2 block with GA resulted in lower postoperative pain than GA alone (2). The combination of intercostal nerve cover (with TPVB) with pectoral nerves, long thoracic and thoracodorsal nerve cover (with PECS) is unique to this case series and shows that MRM can be offered with regional anaesthesia alone.

Conclusion
The specific benefits of regional anaesthesia for breast surgery, such as the lower incidence of chronic pain following mastectomy (3), may be offered to women having more extensive breast surgery. This case series shows that further work in this area is warranted.

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3427366

Don't Forget Rib Fractures: Developing A Multidisciplinary Pathway In Management Of Patients With Multiple Rib Fractures In A High Risk Patient Population.

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Introduction
It has been widely acknowledged that patients with multiple rib fractures have a high associated morbidity and mortality. However the significance of rib fractures, particularly in elderly patients, can be underestimated and poorly managed. Elderly patients who sustain blunt chest trauma with rib fractures have twice the mortality and morbidity of younger patients with similar injuries [1]. For patients with multiple rib fractures (2 or more) studies have shown the benefits of multidisciplinary clinical pathways [2] and analgesia options including: thoracic epidural, thoracic PVB and ICBs [3]. In a busy DGH we audited how well our rib fracture patient population was managed in order to identify how we could improve this service.

Methods
Data was collected of patients referred to the pain team over a 4 month period. Referrals came from all members of the MDT mainly in response to increasing analgesia requirements. Data recorded included: patient demographics, days taken to referral, current analgesia requirements, need for regional analgesia, length of hospital stay and outcome.

Results
In total 41 patients were discharged over this period with rib fractures – of which 33 had multiple rib fractures. 19 patients were referred to pain services. The average age of our population was 71 years old and the average length of stay was 12 days. The average day to referral was 1 day. There were 3 cases of delayed referral >5 days from admission of which 2 died in hospital. A wide variety of referral routes was observed – with the majority referred by outreach team. Importantly 5 patients with multiple rib fractures were managed with oral analgesia alone. In these cases: 1 was noted to have a flail chest, and 2 developed respiratory failure and died during their admission (aged 94 and 79 respectively).

Discussion
Our study showed, particularly within our high risk elderly population, wide variation in referral practice. This led to delayed referral and patients developing complications. In response we developed a multidisciplinary rib fracture pathway focussing on:

- Early referral with clear paths of escalation for specialist pain assessment
- Improving education in A&E and surgical wards
-Training anaesthetic colleagues on the use of continuous thoracic paravertebral blocks
-Tracking all patients referred allowing for continual audit on a 4 monthly basis.

Conclusion
In improving current practice we have delivered a multidisciplinary rib fracture pathway enabling early involvement of pain specialists; and where appropriate encouraging the use of regional anaesthesia techniques particularly in those at greatest risk of developing complications.

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3427691

Development Of An Objective Measure Of Interscalene Block Competency Using Eye Tracking In A Mastery Learning And Dedicated Practice Environment

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Introduction
Ultrasound-guided regional anaesthesia (UGRA) is difficult to learn and the psychological mechanisms underpinning clinical proficiency remain poorly understood[1]. Despite a proliferation of short UGRA training courses, very little medical education evidence exists to guide trainers. Mastery learning is an educational paradigm used succesfully to train technical skills particularly when combined with dedicated practice[2] - the formal repetition of procedures allied to expert feedback and debriefing. Our primary objective was to develop an objective learning curve using eye tracking glasses, while using mastery learning and dedicated practice on a soft embalmed cadaver simulator. Secondary objectives were to measure self efficacy before and after each block.

Method
After University of Dundee Ethics Committee approval and signed consent, 28 anaesthesia trainees performed up to 60 interscalene UGRA blocks over three hours on a single soft embalmed Thiel human cadaver. Eye movements were monitored in real-time using SensoMotoric Instruments (SMI) mobile eye tracking glasses[3]. Eleven performed 20 blocks at 4 month follow up. Four experts performed 20 blocks. Pre and post-test self-report confidence and pre-test anxiety were measured on a 10-point rating scale. Eye movement measures included fixation count and dwell time, shifts in attention (glance count) and scan path distribution.

Results
We created global and trainee specific learning curves using time series analysis. There was a linear reduction over time in task completion time, eye gaze fixations, dwell time and attentional shifts and an increase in confidence ratings. Experts had fewer fixations than novices across blocks, indicating a greater focus of attention. Eight out of 11 trainees retained competency 4 months later. Two trainees subsequently performed clinical interscalene block quickly and well. Pre-procedural eye gaze metrics correlated with performance metrics. No relationship existed between performance and trainee ratings of self efficacy.

Discussion
We developed an objective UGRA assessment tool using eye tracking technology within a mastery learning and dedicated practice training environment.

Conclusions
Eye tracking offers scope to objectively measure trainee proficiency

Acknowledgement
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3427718

Service Improvement Project: Femoral Nerve Block Vs Adductor Canal Block In Elective Primary Total Knee Arthroplasty

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Introduction

Femoral nerve block (FNB) is a well-established regional anaesthetic technique used in the management of patients undergoing total knee arthroplasty (TKA). Is has been shown to reduce pain scores compared to placebo [1], but has also been shown to negatively affect quadriceps motor strength [2]. This hinders mobilisation, predisposes to falls and delays discharge. Recently, there has been increased interest in adductor canal blocks (ACB), where the sensory branch of the femoral nerve (saphenous nerve) is specifically targeted to minimise quadriceps motor weakness. A recent meta analysis looking for differences in pain scores and quadriceps weakness between the two groups was inconclusive [3].

Methods

Data was prospectively collected over 4 months in a single centre. Emergency and trauma patients were excluded, as were revision surgeries. Data collection was via a custom standardised proforma and patients were followed up to discharge. Data was obtained from hospital notes and electronic medication records. Primary outcomes were: a) 1st pain score in recovery b) Opiate consumption on days 0,1 and 2, c) Time to mobilise 10 metres, d) Length of stay. Only strong opiates were accounted for in opiate consumption measurements. All strong opiates were converted to a standardised format ie 1 unit equates to 1mg of morphine and to 25 mcg of fentanyl. Differing routes of administration were not adjusted for, and chronic pain patients on strong opiates were excluded from analyses of opiate consumption.

Results

67 elective TKA patients receiving FNB (21) or ACB (46) were identified. Mean initial pain score (in recovery) was 1.2 (FNB) and 3.6 (ACB). Mean intraoperative opiate consumption (in defined units) was 9.3 (FNB) and 6.8 (ACB). Mean opiate consumption on days 0,1 and 2 between FNB and ACB patients was 23.4 vs 39.2, 29.1vs 9.5 and 7.4 vs 6.8. Mean time taken to mobilise 10m (hours) was 52.0 (FNB) and 38.8 (ACB). Mean length of stay (days) was 5.1 (FNB) and 4.5 (ACB).

Discussion

FNB patients had lower recovery pain scores, but also tended to receive more intraoperative opiate. Postop opioid consumption was lower in the FNB patients on day 0 but greater on days 1 and 2. There was a mean difference of 14h to mobilisation and 0.6 days to discharge in favour of ACB. There are limitations in this study relating to sample size, particularly in the FNB group, due to many anaesthetists chosing to avoid nerve block techniques.

Conclusion

This study shows promise for ACB as part of an enhanced recovery protocol facilitating earlier mobilisation and hospital discharge, although at the expense of higher opiate requirements on the day of surgery.

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3428900

Prospective Upper Limb Regional Anaesthesia Study (ProUltra)

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Introduction
Regional Anaesthesia UK (RA-UK) recommends that consent for Regional Anaesthesia (RA) should be obtained before the day of surgery and include discussion of risks/benefits and alternatives (1).

Objectives:
1. Explore the practice of obtaining consent for upper limb RA.
2. Assess patient recall and perceptions of the consent process.
3. Evaluate patient's attitudes towards use of RA in the future.
4. Collect information on RA techniques.

Methods
Data was collected prospectively over a 10-day period across 6 trusts (Taunton, Barnstaple, Exeter, Torbay, Plymouth and Truro). All patients over the aged of 18 who underwent upper limb RA for elective surgery were included. Data was gathered from the anaesthetic chart and a post-operative follow-up phone call on days 1-3 using a structured questionnaire.

Results
112 patients were identified during the study period. 18% of patient's recalled receiving information before the day of surgery. The most common documented risk was permanent nerve damage (55%). However, overall documentation of risks/benefits was poor. There was marked variation between unprompted and prompted patient recall of the risks and benefits discussed during the consent process. 48% of patients wanted information provided before the day of surgery and 29% preferred to receive it on the day. Overall, patients were satisfied with RA as a form of anaesthetic, 74% of those who had RA with no sedation would choose to have this type of anaesthetic in the future. The 3 commonest blocks performed were Interscalene (52%), Forearm (17%). and Supraclavicular (16%) with 32% of patients having RA performed under general anaesthetic.

Discussion
The RA-UK guidance states that patients should receive information prior to the day of surgery and have adequate time to understand the information and ask questions. Patient perceptions on when information is given to them appears to be divided with under half requesting to receive information before the day of surgery. In the south west region the RA-UK recommended process of consent occurred in 18% of cases based on patient recall. Patient unprompted recall of the risks of RA remains poor and this has previously been compared to recall of risks of surgery, which is significantly higher (2).

Conclusions
This study demonstrates that the consent process for upper limb RA in the south west falls short of published guidance (1). Patients are not consistently being given information preoperatively, nor the opportunity to discuss risks/benefits or alternative before the day of surgery and this is not being documented effectively. Individual trusts should consider how best to improve the consent process.

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3429227

A Prospective Audit On Patient Comfort Following Spinal Anaesthesia With Diamorphine Given During Lower Limb Arthroplasty

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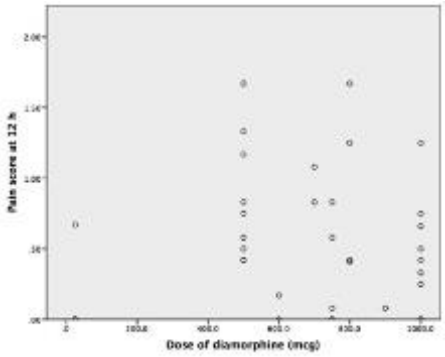
Introduction:
Intra-thecal opioids are used to improve postoperative analgesia for arthroplasties1, 2. Diamorphine is the commonly used intra thecal opioid3 but has not been extensively studied in patients undergoing arthroplasty. We evaluated patient comfort in the postoperative period who had undergone arthroplasty under spinal anaesthesia.

Methods:
40 patients who were scheduled to undergo elective total hip replacement (THR) and total knee replacement (TKR) under spinal anaesthesia were recruited. The following data were collected: age, gender, dose and type of local anaesthetic and opioid used in spinal anaesthesia, intra operative local anaesthetic infiltration, post operative analgesia requirements, hourly pain score, sedation score and incidence of pruritus, nausea and vomiting, respiratory depression and urinary retention.

Results:
17 patients had THR and 23 had TKR.35 patients had opioids used intrathecally with local anaesthetic drugs and 5 had plain local anaesthetics. 32 patients had diamorphine with dose ranging from 500 mcg to 1000 mcg and 3 patients had fentanyl at a dose of 20 mcg. Local anaesthetic infiltration into the joints was done for 19 patients. 3 patients who had TKR had femoral and sciatic nerve block. No difference in the mean pain score over 24 hours was observed. However 8 patients who had spinal diamorphine had severe pain from 6h post procedure and the pain settled with regular analgesia. In patients who had diamorphine 59% of them had pruritus (p=0.0002), 50% of the patients had nausea and vomiting (p=0.054) and 25% developed urinary retention (p=0.449).1 (3%) patient developed respiratory depression. 25 patients had sleep disturbances within 24-hours post procedure. The reasons for sleep disturbance were pain, nausea and vomiting and urinary retention. However there were no correlation between the side effects and the dose of the diamorphine. Patients who had no opioids or Fentanyl did not experience any side effects.

Discussion:
This audit demonstrated no advantage in using higher dose of diamorphine to extend the analgesia. A large proportion of patients who had diamorphine noted significant side effects but incidence of side effects was not dependant on the dose of diamorphine. Patients who had Fentanyl or no opioids did not experience any side effects but patient numbers in these groups were very small.



Conclusion:
Intra-thecal diamorphine with local anaesthetic for lower limb arthroplasties provide good intra operative analgesia, but at the cost of significant side effects in the postoperative period. When compared to no opioids and intra thecal fentanyl, diamorphine does not provide any additional benefits.

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3429293

Spinal Stenosis And Regional Anaesthesia: An Undiagnosed Association

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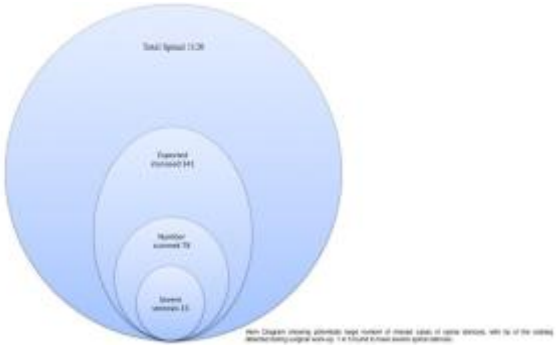
Introduction:
Spinal stenosis is an age related degenerative change occurring within the intervertebral discs and facet joints resulting in narrowing of the spinal canal or neural foramina. There may be an increased risk of nerve damage associated with neuraxial blockade when performed on patients with spinal stenosis. In most cases neuraxial blockade is not the primary aetiology for the postoperative deficits, but it can be a contributing factor due to the double crush phenomenon. Recent ASRA guidelines suggest careful consideration of risks versus benefits of neuraxial anaesthetic techniques in patients with spinal stenosis.

Aim:
To determine the frequency of significant spinal stenosis that has already been identified prior to spinal anaesthesia.

Methodology:
A one year retrospective cohort study was performed at York Hospital for the year prior to the ASRA guidelines. The total number of spinal anaesthetics performed was obtained from the local audit department. Patients who had MRI scan at any time prior to their spinal anaesthesia were identified, and their medical records were reviewed using the electronic patient database. The level and severity of any spinal stenosis was noted. The medical records of the patients found to have moderate to severe spinal stenosis were further reviewed for any contraindications for general anaesthesia.

Results:
The total number of spinal anaesthetics performed across all specialities was 1120. Nearly 7% (78) of all patients had an MRI performed prior to surgery. 19% (15) of the patients who had MRI done were found to have moderate to severe spinal stenosis, of whom nearly 80% underwent orthopaedic procedures. No patients with significant spinal stenosis had any convincing contraindications for general anaesthesia.

Discussion:
The Wakayama Spine Study demonstrated a prevalence of 30.4% for severe spinal stenosis in the general population. Only 17.5% were symptomatic. It is therefore likely that many patients in our study were undiagnosed because they have never had an MRI scan. However, we have shown that a not insignificant number of particularly orthopaedic patients have already had an MRI at some point during their workup and that one in five of these patients have significant disease.



Conclusion:
We have found that a small number of patients have already had an MRI at some point prior to their surgery, and some patients demonstrate significant disease. For these patients in particular, detailed discussion of the risks and benefits of spinal anaesthesia is warranted. It is worth checking patient records for the result of a previous MRI scan.

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3429351

"Grab & Go" -- Lipid Rescue Kit Box

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The administration of Intralipid™ Emulsion (ILE) is a well recognised treatment for local anaesthetic systemic toxicity (LAST). The AAGBI addressed this issue in a Safety Guideline (December 2010)[1]. Recent data suggests the importance of prompt ILE administration when LAST occurs. ILE and a plan for LAST management should be readily available in any facility where local anaesthetics are used [2].

In our institution a recent audit revealed several issues: inappropriate storage of ILE (mostly in fridge), inappropriate volume (some places had only 100ml bag available), lack of attached AAGBI guidelines, staff unaware of Intralipid™ location. This gives rise to the potential risk of significant delay in treatment delivery and/or inadequate dose given for patients in critical condition. We considered how we could ensure that lipid rescue treatment and information were readily available to enable the theatre team to deliver a safe and early dose of ILE in case of LAST.

Our solution was to provide a Lipid Rescue Kit box, which contains two 500ml bags of Intralipid™ (one for bolus/repeated bolus and other one for continuous infusion), two 50ml syringes (to administer bolus), two 16G venflons (one to quickly draw up lipid from bag, one spare), giving set (compatible with hospital i.v. pumps for continuous infusion), quick guidance table (for quick decision making and appropriate dose) and laminated AAGBI safety guideline for reference. There is also a list for consideration for extended use of Lipid Rescue in cases of haemodynamicaly unstable patients with overdose of certain lipophyllic drugs including Amlodipine, Bupropion, Carvedilol, Diltiazem, Diphenhydramine, Flecanide, Lamotrigine, Metoprolol, Organophosphates, Propranolol, Quetiapine, Sertaline, TCAs, Timolol and Verapamile [3].

	Standard	Lipid Rescue Box
Intralipid in theatre	01:20	00:42
First bolus	04:03	02:06
Start infusion	05:58	03:30

A recent audit has shown improved efficiency of *"time to Intralipid™ in theatre"* by 47.5% (0:42 vs 1:20 min), *"time to first bolus"* by 47.1% (2:06 vs 3:58) and *"time to start the infusion"* by 39.3% (3:30 vs 5:46) when using Lipid Rescue Kit box compare to our previous standard. In real life it means delivering the bolus/infusion of Intralipid™ within 1st/2nd cycle of CPR using the Lipid Rescue Kit box instead of 2nd/3rd cycle of CPR using our previous standard. The "grab-and-go" Lipid Rescue Kit box was generally well accepted among anaesthetists and theatre staff for its simplicity, clarity of dosing and standardisation across a variety of clinical areas within our trust.

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3429367

A Novel Multimodal Needle For Regional And Neuraxial Anaesthesia

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Introduction
For both epidural and regional block, resolution of tissue targets and needle tips is hampered by increasing depth, and needle visibility is further impaired by increasing needle angle and out-of-plane needle alignment[1]. There is a need for a needle that has clear tip and shaft visibility over a wide range of angles and depths, distinguishes the needle from surrounding tissue without artefact or shadowing, is low cost, compatible with current ultrasound systems, and offers diagnostic tissue feedback.
We have invented an ultrasound actuator that vibrates needles between 14g and 25g at 20,000 Hertz[2]. Vibration shows needles in colour using doppler ultrasound, and measures needle tip force, peizo-electrical impedance and resonant frequency in real-time. In order to prove our design concept we wished to measure the electro-mechanical response to epidural insertion using 16g and 18g vibrating Tuohy needles in a fresh pork back specimen.

Methods
We performed epidural block in a bilateral loin of pork model. Two operators conducted the block using loss of resistance to air with 16g and 18g Tuohy needles at 3 lumbar sites – L3/4; L4/5 and L5/6. Injections were randomized to 36 epidural injections, repeated three times at each space. We also conducted 36 control injections; operators randomly inserted the Tuohy needle laterally and purposefully hit lamina in order to replicate accidental contact with bone.

Results
Peak force (N) entering the epidural space was less than peak force in the ligamentum flavum, diff. 8.0N (95%CI: 5.6 – 10.4), p<0.001; peak force in the interspinous ligament, diff. 2.4 (95%CI: 0.0 – 4.8), p=0.04; and peak force in bone diff. 11.6 (95%CI: 9.2 – 14.0), p<0.001. Peak force was greater using 16g rather than 18g needles, diff. 3.6 (95%CI: 2.3 – 4.9), p=0.004. There was a difference in peak impedance between the epidural space and ligamentum flavum, diff. 10.1 (95%CI: 3.8 – 16.4) p<0.001; and bone, diff. 17.5 (95%CI: 10.9 – 23.8) p=0.04. Peak impedance was greater using 16g rather than 18g needles, diff. 13.2 (95%CI: 9.8 – 16.6) p<0.001.

Discussion
Our visible needle is able to differentiate between tissues during epidural insertion. We showed differences between tissues using 16g and 18g Tuohy needles

Conclusion
We have shown that our visible needle also has tissue signature properties

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3429371

Improving Quality, Experience And Throughput: Use Of Regional Anaesthesia For Mastectomy

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Introduction:
Regional anaesthesia results in improved perioperative analgesia[1], reduced chronic pain and improved quality of life following major breast surgery[2]. The British Association of Day Surgery (BADS) recommends that 15% of mastectomies should be done as a day case, and a further 70% with a one night stay[3]. Two years ago, we started a quality improvement programme to improve the quality, experience and throughput of patients undergoing breast cancer surgery. This included standardising anaesthetic care amongst regular anaesthetists with an interest in breast surgery. Standard care now includes multimodal analgesia with regional anaesthesia and avoidance of long-acting opioids to minimise side effects and enhance recovery from surgery. We use either a transverse in-plane ultrasound-guided paravertebral block at the level of the third thoracic vertebra or an interpleural block using a loss of resistance technique.

Methods:
Following approval from our institutional audit department, we identified patients undergoing simple mastectomy (excluding reconstruction or axillary clearance) between April 2013 and October 2015 from our electronic record system. Length of stay (LOS) was compared to the BADS targets. Data were analysed with the Chi-square test to look for differences between the years. For patients undergoing mastectomy as a day case, we undertook a telephone survey to assess patient experience and satisfaction.

Results:
We performed 203 simple mastectomies in the 30 month period of the audit. Our day case rate for patients undergoing mastectomy rose year-on-year from 1.5 to 27.8% (see table 1) (Chi-square = 22.2, p = 0.001). Of the patients followed up by telephone survey (n=10), all were satisfied or very satisfied with their postoperative analgesia, and all were very satisfied with their experience of having their procedure as day case. No complications as a result of regional anaesthetic techniques were reported.

Nights in hospital	2013 / 14	2014 / 15	2015 / 16
0	1 (1.5)	10 (9.9)	10 (27.8)
1	23 (34.8)	46 (45.6)	11 (30.6)
2	26 (39.4)	28 (27.7)	7 (19.4)
≥3	16 (24.2)	17 (16.8)	8 (22.2)
Total	66	101	36

Table 1:
Length of stay by financial year. Data represent frequency **n (%)**

Discussion:
Our data demonstrate an overall decrease in length of stay for patients undergoing simple mastectomy since the beginning of our breast surgery quality improvement programme. Regional anaesthetic techniques for breast surgery have allowed us to avoid long acting opioids, minimising side effects that have historically delayed discharge.

Conclusions:
Paravertebral and interpleural blocks can be used as part of a quality improvement programme to decrease length of stay and produce excellent patient satisfaction.

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3429373

Development Of A Preoperative Fascia Iliaca Catheter Service For Fractured Neck Of Femur - 2 Year Experience.

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Introduction:
Regional analgesia provides better pain relief for fractured neck of femur (FNOF), reducing perioperative delirium and length of stay compared to opioid-based analgesia[1]. In 2013 we introduced a fascia iliaca catheter (FIC) service to provide preoperative analgesia. Patients with FNOF are referred by the emergency department to an anaesthetist as part of a fast-track admission pathway. We perform an ultrasound guided supra-inguinal fascia iliaca block[2] followed by a continuous infusion until 24-48 hours after surgery.

Methods:
Following approval from our local research and development department, we undertook this service evaluation. Data concerning patients with a FNOF was obtained from our institution's acute pain database and the National Hip Fracture Database. In October and November 2015, we undertook a prospective audit of consecutive patients admitted with FNOF. Differences between patients with and without a FIC were compared using the Mann-Whitney U test.

Results:
Over a two year period, 1028 patients were admitted with a FNOF; 303 of these received a preoperative FIC. Of the remaining patients, 96% received a single-shot regional anaesthetic technique in theatre. The proportion of patients receiving a preoperative FIC increased from 18% in 2013 to 33% in 2015. As rated by the acute pain team, 79% of catheters were effective, 3% ineffective, 11% removed prior to review, and 7% not possible to assess. No complications were reported as a result of the FICs. The prospective 2-month audit collected data from 81 patients (43 received FICs, 38 did not). Reasons for not receiving a FIC included lack of availability of a regional anaesthetist, coagulopathy, patient refusal and agitation. Pain scores on movement are shown in Figure 1. Pain scores were significantly lower in patients with a FIC on the morning of surgery and the first postoperative day. There was no statistically significant difference in resting pain scores between the groups.

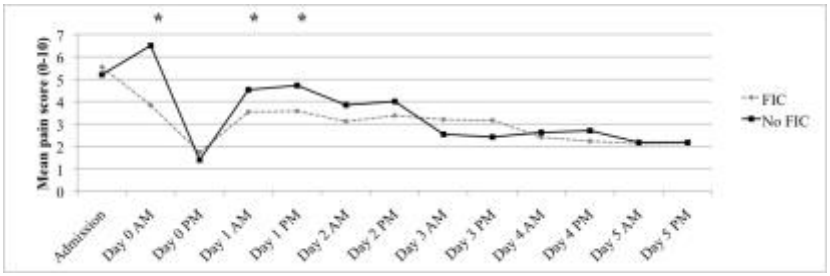

Figure 1:
Pain scores at different time points. Points represent mean pain scores on movement on a 10 point numerical rating scale. * difference between the FIC/no FIC groups ($p<0.05$).

Discussion:
Patients receiving a preoperative FIC have reduced pain scores on movement than those without. This effect is most noticeable on the morning of surgery, but extends to the first postoperative day, after single-shot techniques in theatre have worn off. The main barrier to increased FIC use in our institution is the availability of a regional anaesthetist.

Conclusions:
We have successfully implemented a preoperative fascia iliaca catheter service to provide analgesia for fractured neck of femur.

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3429390

Consent For Regional Anaesthesia. Are We Scoring Good?

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Introduction
Peripheral nerve blocks are performed by anaesthetists to provide anaesthesia and analgesia for patients undergoing limb surgery[1]. Like all procedures in anaesthesia, nerve blocks are associated with certain inherent risks and complications. A properly taken consent can help patients make an informed decision about undergoing nerve blocks and will also protect an anaesthetist from subsequent criticism and litigation[1]. A proper consent should include explaining the procedure, its benefits, the alternatives, any side effects and any potential complications

Methods
Data from anaesthetic charts of all patients who had peripheral nerve block performed for their surgical procedure, were collected retrospectively for the duration 01/08/2015 to 30/09/2015.
Anaesthetic charts were reviewed for documentation of consent for peripheral nerve block including type of block, discussion of benefits and complications of various blocks, alternate pain relief and patients' agreement for nerve block. Time of consent obtained (prior to theatre arrival/anaesthetic room) were also noted. Documentation of consent for both general and specific complications of nerve blocks were reviewed

Results
There were 42 patients who had peripheral nerve block done during the study period.
The peripheral nerve block performed included various brachial plexus blocks, radial/ulnar/median nerve blocks, femoral/fascia iliaca blocks, obturator nerve blocks, popliteal and ankle block.
33.3 %(14/42) of the reviewed anaesthetic documents did not have any documentation in relation to consent of peripheral nerve block.

Type of nerve block was not documented in consent section in 66.6 % of anaesthetic notes.
Complications of various nerve blocks were incompletely documented in most of the anaesthetic charts
Discussion of benefits and alternate pain relief was not documented in 85.71% and 92.85% of anaesthetic charts respectively.

Patient's agreement to nerve blocks was documented in only 4.76% of charts.

Discussion
Specific written consent for regional anaesthesia to facilitate a surgical procedure is not required as long as written, signed consent is obtained for surgery. But all the risks/benefits/alternatives to nerve blocks should be documented in patient's notes[1].

Conclusion
In our study we concluded that documentation of consent for peripheral nerve block is very much below standard and needs further improvement. We are considering easier methods of documenting consent for the nerve blocks which will be discussed.

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3429401

Rectus Sheath Catheters: Infusion Versus Bolus Technique

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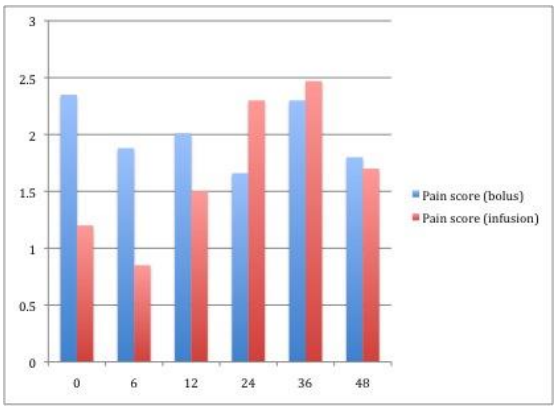
Introduction
Epidural for laparotomy has long been considered the gold standard for peri-operative analgesia, but can be associated with various complications(1). Alternative methods of analgesia must sometimes be used. Rectus sheath catheters are an alternative method of pain relief associated with relatively few complications and providing comparable analgesia to epidural anaesthesia(2). We recently moved to a system using an infusion to administer the local anaesthetic rather than a bolus method and have since compared techniques.

Method
Patients with rectus sheath catheters post operatively were identified and divided into infusion or bolus groups. Data collected was: date of operation, sex, age, operation, surgeon, CEPOD classification, infusion or bolus of local anaesthetic, total amount of local anaesthetic administered, pain scores at 0,6,12,24,36 and 48 hours, time after the operation catheter removed, amount of morphine used up to catheter removal, amount of morphine in the first 24 hours.

Results
Mean pain scores beyond 24 hours are similar, but pain scores in the first 24 hours are slightly lower in the
infusion group. In the first 24 hours post operatively the bolus group used 50.4mg morphine on average compared to 29.8mg in the infusion group. The mean amount of local anaesthetic infused in the infusion group was 659mgs to the point of catheter removal and 476mgs in the bolus group. However, the length of time that the catheters remained in situ were 47.1 hours for the bolus technique compared to 85.65 hours for the infusion.



Discussion
The primary outcome of this study was pain score, the results suggest they are at least equivocal. A secondary outcome was morphine consumption. The morphine consumption to the point of catheter removal is very similar, but this is skewed by the difference between the mean length of time the catheter was left in situ. Looking at the values of morphine consumption in the first 24 hours the infusion technique appears to be superior. A reason that the length of time the catheter was left in situ was shorter in the bolus category, is that sometimes a patient may be stepped down from HDU to make room for a patient more in need, meaning the catheters had to be removed as they could not be used on the wards. The infusion method infers a cost advantage as the patient does not need to use an HDU bed for any longer than necessary, but gives the patient the advantage of continuing with effective pain relief upon returning to the ward.

Conclusion
We can conclude that rectus sheath catheter infusions provide at least equivalent pain relief to the traditional bolus method and should be considered a worthy alternative.

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3433201

Regional And Local Anaesthesia In Arteriovenous Fistula Creation

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Introduction
Arteriovenous Fistulae (AVF) are created for long term vascular access in patients requiring Haemodialysis due to End Stage Renal Failure (ESRF). Radio-Cephalic and Brachio-Cephalic are the most common sites for AVF creation. In our centre these procedures are carried out under Regional Anaesthesia or Local Anaesthesia.
Regional Anaesthesia increases vasodilation resulting in increased fistula flow which can bring about early maturation and increase the success rate of AVF compared to Local Anaesthesia.2 3

Methods
40 patients undergoing AVF creation for Haemodialysis due to ESRF were identified. 20 patients underwent Regional Anaesthesia and 20 underwent Local Anaesthesia. Regional technique was with Supraclavicular or Axillary Brachial Plexus block using a mixture of Prilocaine and Lignocaine with Adrenaline 1.5%. Local Anaesthesia was administered by local infiltration during the procedure using Lignocaine with Adrenaline 1%. Doses were adjusted on a patient-by-patient basis, as is normal practice in our centre. AVF having matured at 6 weeks or later were deemed successful. AVF requiring revision or Fistuloplasty were deemed to have failed.

Results
AVF creation was successful in 70% (14 successful, 6 failed) of patients who underwent Regional Anaesthesia. AVF creation was successful in 50 % (10 successful, 10 failed) of patients who underwent Local Anaesthesia.

Discussion
Patients with ESRF have significant comorbidities and may be at increased risk of morbidity and mortality from General Anaesthesia.1 3
Regional Anaesthesia provides better analgesia for AVF creation and in the postoperative period. In addition, Regional Anaesthesia causes vasodilation and increased flow by sympathetic blockade, which may provide better conditions, improved patency and increased success of AVF creation.2 3

Regional Anaesthesia appears preferable to Local Anaesthesia for AVF creation due to higher success rates and early maturation. However this may be subject to confounding factors including selection bias of patients unable to tolerate Regional Block; Anaesthetic dosing; variation in site used for AVF creation.

Conclusion
These findings support the use of Regional Anaesthesia as the method of choice for AVF creation as it can result in early maturation and improved success rates. Further study is required to exclude the effect of confounding factors.

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