

*British Society of Orthopaedic
Anaesthetists*

Virtual Event Series

*Abstracts and Biographies for
Virtual Events*

September – November 2020

ORTHOPAEDIC ANAESTHESIA IN THE COVID ERA – PART 1

Tuesday 8th September

14.00 – 14.05	Welcome from Society President and Moderator	<i>Dr EJ da Silva, Birmingham & Dr Adam Fendius, Oxford</i>
14.05 – 14.20	Trauma in the Elderly: A New Epidemic?	<i>Dr Bernadette Ratnayake, London</i>
14.20 – 14.40	Day Case Hip Replacement: A Surgical Perspective	<i>Mr Simon Newman, Oxford</i>
14.40 – 15.00	Short Acting Spinal Anaesthesia in Knee Surgery	<i>Dr Robbie Erskine, Derby</i>

15.00 – 15.30 Q&A

ORTHOPAEDIC ANAESTHESIA IN THE COVID ERA – PART 2

Tuesday 6th October

14.00 – 14.05	Welcome from Society President and Moderator	<i>Dr EJ da Silva, Birmingham & Dr Vassilis Athanassoglou, Oxford</i>
14.05 – 14.20	Day Case Knee Replacement: Changing the Multidisciplinary Approach	<i>Mr Nicholas Bottomley, Oxford</i>
14.20 – 14.40	Making the most of pEEG Monitoring in Orthopaedics and Trauma	<i>Dr Mark Barley, Nottingham</i>
14.40 – 15.00	Datix vs. Greatix	<i>Prof Meghana Pandit, Oxford</i>

15.00 – 15.30 Q&A

VIRTUAL TRAINEE PRIZE PRESENTATIONS

Monday 2nd November

14.00 – 14.05	Welcome from Society President	<i>Dr EJ da Silva, Birmingham</i>
14.05 – 14.55	Free Paper Session	Chair: Dr Zehrin Nassa, Birmingham
	Prilocaine spinal anaesthesia for ambulatory orthopaedic surgery – case series of prilocaine use for total hip arthroplasty in a tertiary orthopaedic hospital	<i>Dr Orlaith McMahon, Oxford</i>
	Rib fracture management in a Major Trauma Centre – a research & quality improvement project	<i>Dr Callum Twohig, London</i>
	Ankle block vs spinal vs general anaesthesia for day-case foot and ankle surgery. An audit of patient satisfaction and theatre efficiency	<i>Dr Chris McGrath, Portadown</i>
	Two consecutive major lower limb operations in a heart-lung transplant recipient in the COVID era: challenging patient in challenging times!	<i>Dr Bhuvan Bhaktavatsalam, Oxford</i>
	Revisiting standardised consent documentation for orthopaedic central neuraxial blocks (CNBs): a quality improvement project (QIP)	<i>Dr Katy Watson, Oxford</i>
14.40 – 14.55	Free Paper Q&A Session	<i>Dr Svetlana Galitzine & Dr Julie Kuzhively, Oxford</i>
14.55 – 15.55	Lecture Session	Chairs: Dr Svetlana Galitzine & Dr Julie Kuzhively, Oxford
14.55 – 15.25	Analgesia for Rib Fractures: Choices and Evidence	<i>Dr Peter Merjavý, Northern Ireland</i>
15.25 – 15.45	Peripheral Nerve Blocks and Prevention of Nerve Injury	<i>Prof Colin McCartney, Ottawa</i>
15.45 – 15.55	Q&A	<i>Dr Svetlana Galitzine & Dr Julie Kuzhively, Oxford</i>
15.55 – 16.00	Prize Presentation and Session Close	<i>Dr EJ da Silva, Birmingham</i>

Dr Bernadette Ratnayake MBBS, DA, FRCA, aFFPMRCA

Immediate past President British Society of Orthopaedic Anaesthetists, UK

Consultant Anaesthetist - 1997

Kingston Hospital Foundation Trust, Surrey, UK

Visiting Consultant - Elective Orthopaedic Centre, Epsom – 2003

Lead Clinician Inpatient Pain Management

Founding Clinician Department of Peri-Operative Medicine

Educational Supervisor for Anaesthetic Trainees & Consultant Appraiser

NIAA Board & Research Council- Specialist Society representative 2019-2020

Member, NIAA Research council, UK. (National Institute of Academic Anaesthesia)

Clinical & research interests are in orthopaedic anaesthesia, pain management, peri-operative care and enhanced recovery.

Mr Simon Newman

Simon Newman is a Consultant Hip and Knee Surgeon at the Nuffield Orthopaedic Centre in Oxford. He underwent academic higher surgical training in North-west London including completion of a PhD on partial knee replacement at Imperial College London. He subsequently obtained subspecialty training hip surgery in Bournemouth and Oxford. He was appointed to his current post in February 2018 and has developed a practice focussing on all aspects of hip surgery including osteotomy, arthroscopy and arthroplasty. He is co-lead of the hip and knee fellowship program in Oxford and holds honorary academic roles at Imperial College London, Bournemouth University and the University of Oxford.

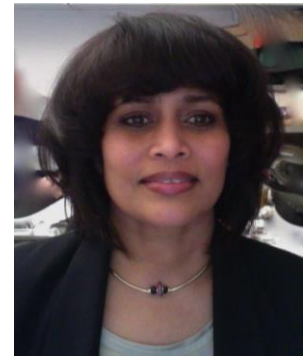
Dr Robbie Erskine FRCA

Consultant anaesthetist Derby UK. Interest in acute pain, ultrasound guided regional anaesthesia and targeted spinal anaesthesia for ambulatory surgery.

Professor Meghana Pandit

Chief Medical Officer, Oxford University Hospitals NHS Foundation Trust
Professional Qualifications: MBBS, FRCOG, MBA

Experience: Meghana trained in Obstetrics & Gynaecology in the Oxford Deanery and was Visiting Lecturer in Urogynaecology at University of Michigan, Ann Arbor, USA. Meghana was Consultant Obstetrician and Gynaecologist, Clinical Director and then Divisional Director at Milton Keynes before joining University Hospitals Coventry and Warwickshire NHS Trust (UHCW) where Meghana was Chief Medical Officer from May 2012 to December 2018 and Deputy Chief Executive from 2014. Meghana is Course Director for MSc in Healthcare Operational Management at Warwick University. Meghana has completed an MBA from Oxford Brookes University and the Innovating Health for Tomorrow Programme at INSEAD, Fontainebleau. Meghana was awarded the Founding Senior Fellowship of the Faculty of Medical Management and Leadership and is Professor of Practice at Warwick University. Meghana is Associate Fellow at Green Templeton College, University of Oxford.



As Chief Medical Officer at UHCW, Meghana led the development of clinical strategy and had responsibility for Clinical Quality, Risk, Medical Education, Research & Development, and Legal Services. She was Responsible Officer for over 500 doctors and undertook clinical office based Gynaecology.

As Chief Medical Officer at Oxford University Hospitals, Meghana has responsibility for Clinical Safety and Outcomes, Infection Prevention & Control, Medical Education, and Research & Development. She is also Responsible Officer for over 1000 doctors. Meghana continues her association with Warwick University.

Dr Mark Barley

Mark is a Consultant Anaesthetist at Nottingham University Hospitals NHS Trust. His clinical interests are major head and neck surgery, upper GI and emergency surgery where he uses EEG monitoring routinely. His academic and educational interests are TIVA and pEEG, particularly the effects of age and vulnerable brain phenotype on the EEG.



Dr Peter Merjavy

Consultant Anaesthetist and Acute Pain Lead, Craigavon Area Hospital, NI, UK

Peter works as Consultant Anaesthetist and Acute Pain Lead in Craigavon Area Hospital, NI, UK. He has completed European Diploma in Regional Anaesthesia (EDRA) in 2008 and was awarded his PhD in 2011. He is a Honorary Senior Lecturer at the University of East Anglia for the MSc in Regional Anaesthesia and Editor in Chief for ESRA Newsletter as well as EDRA Examiner & Board member. He is President of Northern Ireland Society of Regional Anaesthesia and Slovak Association of Regional Anaesthesia.



Dr Colin McCartney

Dr. Colin McCartney is the Head and Chair of Anesthesiology and Pain Medicine at The Ottawa Hospital and the University of Ottawa and is a Staff Anesthesiologist at the Ottawa Hospital, a Professor of Anesthesiology and Pain Medicine at the University of Ottawa and a Scientist at the Ottawa Hospital Research Institute.

Dr. McCartney trained in medicine at the University of Edinburgh, where he completed a PhD in 2014. In between, he completed training in anesthesia and pain medicine in Scotland, a fellowship in regional anesthesia and pain medicine in Toronto, and worked as a Staff Anesthesiologist in Toronto before moving to Ottawa. At the University of Toronto, he led research teams at two centres as well as two internationally recognized fellowship programs.

Dr. McCartney's research interests include examining opportunities for improvement in the clinical care of patients undergoing joint replacement, as well as improving the quality and safety of regional anesthesia procedures. Dr. McCartney is the editor for two anesthesiology journals, has published numerous articles in relation to regional anesthesia and pain medicine, and has supervised many graduate students, fellows and residents in their own research during the last fifteen years.



BRITISH SOCIETY OF ORTHOPAEDIC ANAESTHETISTS

Poster Presentations

Anaesthesia for Unicompartmental Knee Replacement

Saritha Thirunagari¹, Svetlana Galitzine² and Abtin Alvand³, ST 6 Anaesthetics, Nuffield Orthopaedic Centre (NOC), Oxford, UK, Consultant Anaesthetist, NOC and Consultant Surgeon, NOC

Day case hip and knee replacement - Initial experience of day case joint replacement in an elective orthopaedic centre

S. Sodha, P. Subramanian, Barnet Hospital, Hertfordshire, UK

Multidisciplinary management of pain following bilateral below knee amputation in a patient with contraindicated epidural analgesia

BJ. Bhaktavatsalam, S. Galitzine, R. Webster, Oxford university hospital, UK

Improving rates of same day discharge in patient's undergoing anterior cruciate ligament surgery

Medlock R¹, Ayub K¹, Mavroeidis P¹, Vijapur A¹, Johal P¹, ¹Buckinghamshire Healthcare NHS Trust, Aylesbury, UK

Supraclavicular brachial plexus block and continuous supraclavicular catheter infusion for successful upper limb immobilisation and analgesia following pedicled groin flap

McMahon O, Jeevaratnam J, Ramsden A, Galitzine S, Oxford University Hospitals NHS Foundation Trust

Steroid-induced hiccups – a case study

Osborne F¹, Norman H², Jamhour S³, DaSilva EJ³ 1. Queen Elizabeth Hospital, Birmingham UK, 2. University College London, London, UK 3. Royal Orthopaedic Hospital, Birmingham, UK.

How can we improve our trauma and orthopaedic theatre lists? – a quality improvement project with the aim to produce a new standard

Marjan Raad, Siddharth Virani, Sheela Vinay, Philip Housden, William Harvey Hospital, Trauma & Orthopaedics, Ashford, United Kingdom

Our experience with peripherally inserted central catheters (PICC) at a tertiary orthopaedic hospital- A analysis of complications over the last 5 years.

S Dsouza, C Crick, S Chin, R Krishnan, Royal National Orthopaedic Hospital(RNOH), Stanmore, London, UK

Tapia's syndrome: a case report examining the beach chair position

A. Gribble, C. Wang and T. Tanqueray, Homerton University Hospital, London, UK

Mobilisation of an ERAS protocol following total knee replacement: improving patient length of stay and post-operative analgesia

J. Shepherd, C. Mayes and R. Thomson, Aberdeen Royal Infirmary, Aberdeen. UK

Analgesia post primary knee arthroplasty

M. Sarsam, M. Moawia, J. Veitch, Nottingham City Hospital, Nottingham, UK

ANAESTHETIC Sprint Audit of Practice: An Audit of Anaesthetic Management of Neck of Femur Fractures at a District General Hospital and Consequent Implementation of Local Guidelines

J. Carvalho, J. Kuzhively*, A. Ahmad[†] and S. Jayasundera[†], *John Radcliffe Hospital, Oxford, UK; [†]Wexham Park Hospital, Slough, UK*

Learning ultrasound guided neuraxial technique in the emergency setting during the covid-19 era

M. May, S. Galitzine, J. Matthews, Oxford University Hospitals, Oxford, UK

Evaluation of pre-operative analgesia received by patients admitted with fractured neck of femur at Worthing Hospital.

Dawe H, Holcombe-Law R A, Worthing Hospital, Western Sussex Hospitals, Worthing, UK

Accuracy and clinical implications of estimated GFR versus calculated GFR in patients undergoing primary lower limb arthroplasty

Gnap R1, Churton A1, Doleman B1, Veitch J1, 1. Nottingham University Hospitals Trust, Nottingham, United Kingdom

Challenges of central neuraxial anaesthesia and sedation in obese and morbidly obese patients undergoing prolonged lower limb free flap surgery

J. Kuzhively, S. Galitzine, Nuffield Department of Anaesthetics, Oxford University NHS Hospitals Trust, Oxford

Frailty in the elective orthopaedic population: assessing the population and designing a service to manage frail patients

Y. Ghumra, V. Thanawala, Nottingham University Hospitals NHS Trust, Nottingham, UK

CASE SERIES: Using high flow nasal oxygen (Optiflow) with deep sedation for complex orthopaedic operations

L. Y. Tee, S. Galitzine, O. McMahon, J. Kuzhively, V. Athanassoglou, Nuffield Department of Anaesthetics, Nuffield Orthopaedic Centre, Oxford University Hospital, UK.

Analgesia Nociception Index Potential Use for Chronic Shoulder Pain Detection

Sabine Zande, Dr.Med.Iveta Golubovska, Dr.Med.Aleksejs Miscuks, Department of Anaesthesiology, Hospital of Traumatology and Orthopedics, Riga, Latvia & Faculty of Medicine, University of Latvia, Riga, Latvia

Optimising perioperative analgesia in ACL repairs (Audit)

F. Hull, A. Huckle, V. Thanawala, Nottingham University Hospitals NHS Trust, Nottingham, UK

Restoration of elective surgery following the SARS-CoV-2 pandemic in a tertiary specialist centre

HK. Ubhi¹, Z. Nassa¹ The Royal Orthopaedic Hospital, Birmingham. UK

Improving perioperative outcomes in hip fracture patients – a quality improvement process

E. Makmur, K. Williams, G. Mathew, Southend University Hospital, Southend-on-Sea, UK

Devising a novel Triage system to identify high risk patients undergoing joint replacement surgery

V Padmanabhan, H Naqvi, S Sivasubramaniam, Sandwell & West Birmingham Hospitals NHS Trust

Anaesthesia for Unicompartmental Knee Replacement

Saritha Thirunagari¹, Svetlana Galitzine² and Abtin Alvand³

ST 6 Anaesthetics, Nuffield Orthopaedic Centre(NOC), Oxford, UK, Consultant Anaesthetist, NOC and Consultant Surgeon, NOC

Background: The utilization of neuraxial versus general anesthesia for primary joint arthroplasty is associated with superior perioperative outcomes [1]. Current trend is moving towards day surgery supported by evidence from the Enhanced Recovery Program pathways. We present successful anaesthetic management of Unicompartmental Knee Replacement(UKR) using Intrathecal Hyperbaric Prilocaine. Use of intrathecal Prilocaine for UKR hasn't been reported in literature.

Case report: A patient aged 80yrs with history of spinal stenosis and prostatism was booked for elective medial UKR. He had contralateral UKR 12yrs ago under spinal with hyperbaric bupivacaine + popliteal n. block (20mls 0.2% Ropivacaine) and sedation. This later procedure was complicated by post-operative urinary retention which needed catheterisation. After discussion with team, decision was taken to use intrathecal hyperbaric prilocaine + adductor canal block (10mls 0.5% plain bupivacaine) to avoid the same problem during the current in-patient procedure. Comparison of times is as below suggesting quicker recovery and physiotherapy readiness for discharge:

Times(min)	Dose	Spinal to theatre	Operation time	Return of sensation	Stay in recovery	Physio ready	Ready for discharge
Bupivacaine	14mg	42	58	312	192	Seen ~23hrs	~42hrs
Prilocaine	60mg	27	66	135	86	337(<6hrs)	<6hrs

Discussion: There is a strong association between spinal anesthesia and lower 30-day mortality, as well as a shorter hospital length of stay, after elective joint replacement surgery [2]. Hyperbaric Prilocaine use for ambulatory arthroscopic surgery has been reported in literature [3].

Learning points: Intrathecal Hyperbaric Prilocaine is suitable for UKR Day Case surgery. It gives advantage over Heavy Marcaine facilitating early ambulation and early discharge whilst reducing the chance of urinary retention. Good team work with co-ordination with the surgical team is necessary to ensure duration of anaesthesia covers positioning and operative time. (282 words)

References:

- 1 [Memtsoudis SG](#), [Sun X](#), [Chiu YL](#), [Stundner O](#), [Liu SS](#), [Banerjee S](#), [Mazumdar M](#), [Sharrock NE](#), Perioperative comparative effectiveness of anesthetic technique in orthopedic patients. [Anesthesiology](#). 2013 May;118(5):1046-58
- 2 [Perlas A](#), [Chan VW](#), [Beattie S](#), Anesthesia Technique and Mortality after Total Hip or Knee Arthroplasty: A Retrospective, Propensity Score-matched Cohort Study. [Anesthesiology](#). 2016 Oct;125(4).
- 3 [Aguirre J](#), [Borgeat A](#), [Bühler P](#), [Mrdjen J](#), [Hardmeier B](#), [Bonvini JM](#), Intrathecal hyperbaric 2% prilocaine versus 0.4% plain ropivacaine for same-day arthroscopic knee surgery: a prospective randomized double-blind controlled study. [Can J Anaesth](#). 2015 Oct;62

Day case hip and knee replacement - Initial experience of day case joint replacement in an elective orthopaedic centre

S. Sodha, P. Subramanian

Barnet Hospital, Hertfordshire, UK

Background: The median length of stay at our institution for patients undergoing hip or knee replacement is 3-4 days. Although uncommonly performed in the NHS, day-case joint replacement has been demonstrated to be effective, safe and cost-saving.[1,2] We report a case series of our first hip and knee replacement surgeries performed as day cases.

Case report: Five cases are included, with day case defined as discharge within 23 hours. The first was a highly motivated male with a background of obesity and an above knee amputation on the contralateral side. He underwent a unicompartmental knee replacement and was successfully discharged to his home residence on the day of surgery. A multidisciplinary approach with spinal anaesthesia, adductor canal and IPACK blocks, early mobilisation and a positive attitude facilitated this pathway. Two further unicompartmental knee replacements, and a total knee replacement are described who were discharged within 23 hours after similar approaches. Nausea and dizziness prevented same-day discharge in those who received general rather than spinal anaesthesia. The last is a patient who underwent hybrid total hip replacement under spinal anaesthesia and was successfully discharged on day zero. All five patients had good exercise tolerance (METS above 6), low frailty (Rockwood Score 2 or less), and were under 70 years old. There were no 30 day re-admissions nor early complications.

Discussion: Key factors associated with successful day case discharge appear to be motivation to get home, a supportive home environment and standardised anaesthetic pathways. Good exercise tolerance and the absence of significant frailty were also seen in all cases. Comorbidities such as obesity, smoking, and even contralateral amputation were not limiting factors.

Learning points: In an increasingly strained NHS, day case hip and knee replacement is feasible, safe, cost-effective and associated with high patient satisfaction. We hope to widen the range of patients to whom we offer day-case surgery, but motivation, good exercise tolerance and low frailty, as well as successful spinal anaesthesia, are likely to remain key factors associated with success.

References:

1. Aynardi M.et.al. HSS J 2014;10:252.
2. Maempel JF.et.al. Bone Joint J 2016;98:475-482.

Multidisciplinary management of pain following bilateral below knee amputation in a patient with contraindicated epidural analgesia

BJ. Bhaktavatsalam, S. Galitzine, R. Webster

Oxford university hospital, UK

Background: Post amputation pain can be severe, intractable and major cause of morbidity with profound impact on patients' functioning and well-being. We describe a case of management of pain in a patient who had bilateral below knee amputation (BKA).

Case report: A 31year old gentleman with a background of mitochondrial myopathy and chronic pain in lower limbs, underwent bilateral BKA. He had spinal cord stimulator inserted in lumbar epidural space for chronic pain. Thorough preoperative assessment was carried out and plan for spinal anaesthesia and peripheral nerve blocks was made. Epidural analgesia was deferred as per neurosurgical advice. Referral to acute pain team and optimisation of preoperative pain was done. On the day of surgery, he had spinal anaesthesia with bilateral adductor canal and popliteal nerve blocks. Post operatively, multimodal analgesia with morphine PCA was prescribed. Patient remained pain free initially but on day 2 post-op, he developed severe pain in lower limbs, not relieved by pharmacological agents. Bilateral adductor canal and popliteal blocks were repeated with good pain relief. On subsequent follow up, patient was pain free and had satisfactory outcome.

Discussion: Management of post amputation pain is challenging. Neuraxial anaesthesia has been shown to provide better analgesia in the first postoperative week. Role of epidural analgesia, peripheral nerve blocks and perineural catheter infusions for immediate pain relief is well established in literature even though the evidence for prevention of chronic pain is low [1]. The evidence of acute pain team input in reducing peri-operative pain, improving morbidity and enhancing patient satisfaction is increasing [2]. Successful management of pain results in increased engagement of patients in rehabilitation programmes.

Learning points: Detailed preoperative assessment and planning, early involvement of pain team and multidisciplinary approach will improve patient outcomes.

References:

1. Ahuja V et al. Strategies for prevention of lower limb post-amputation pain: A clinical narrative review. *J Anaesthesiology Clinical Pharmacology* 2018;34:439-49
2. Aladin H et al. Major lower limb amputation audit – introduction and implementation of a multimodal perioperative pain management guideline. *British Journal of Pain* 2018, Vol 12(4) 230–237

Improving rates of same day discharge in patient's undergoing anterior cruciate ligament surgery

Medlock R¹, Ayub K¹, Mavroeidis P¹, Vijapur A¹, Johal P¹.

¹*Buckinghamshire Healthcare NHS Trust, Aylesbury, UK*

Background: Anterior Cruciate Ligament (ACL) injuries are one of the most common knee injuries, accounting for around 40% of all sport injuries [1]. At Buckinghamshire Healthcare NHS Trust a review found that during April 2017 - March 2018 our rate of same day discharge for patients undergoing ACL surgery was well below national average (5% vs 50%). Studies have demonstrated that unexpected admission and complications are low in day case ACL surgery [2]. In addition to patient-specific benefits there are organisational incentives that include reduced cancellation rates and economic benefits [3].

Audit Standard: GIRFT data indicates that a minimum of 50% of ACL repairs should be performed as day case.

Method: We analysed data from all patients undergoing ACL repair at Buckinghamshire Healthcare NHS Trust between 1st January and 31st December 2019.

Results: During this period 71 operations were performed. Reviewing patient demographics demonstrated that the majority (69%) of patients were male, with a mean average age of 29 years old. 78% of injuries were a result of sporting activities. 100% of patients had a general anaesthetic and 66% had an additional regional anaesthetic block (20% motor sparing block vs motor block 46%). Average length of stay was 1.89 days. 11.3% (8) of our patients were discharged on the same day including 9.8% (7) that had GA with a motor sparing block and local infiltration while 1.5% (1) had GA with local infiltration only.

Discussion: Despite clear data that identifies the possibility of higher rates of day case ACL surgery, our trust is not achieving this target. Increasing our rates of same day discharge will require a multi-disciplinary approach. From an anaesthetic perspective we identified that patients who had a motor sparing block, such as an adductor canal block, were more likely to be discharged home on the same day. We have carried out staff training within the anaesthetic department to increase knowledge and awareness of this technique. We have also produced a day case guideline for ACL repair recommending multimodal pain management including motor sparing (adductor canal) block and local infiltration. This would facilitate patient discharge on the same day as surgery. A re-audit will be conducted after the change of practice.

References:

1. <https://www.nhs.uk/conditions/knee-ligament-surgery/> accessed 23 February 2020.
2. Kumar A, Bickerstaff DR, Johnson TR, Appleton DFJ. Day surgery anterior cruciate ligament reconstruction: Sheffield experiences. *Knee*. 2001; 8:25-27
3. Department of Health. The NHS Plan: a plan for investment. A plan for reform. London: DoH, 2000

Supraclavicular brachial plexus block and continuous supraclavicular catheter infusion for successful upper limb immobilisation and analgesia following pedicled groin flap

McMahon O, Jeevaratnam J, Ramsden A, Galitzine S

Oxford University Hospitals NHS Foundation Trust

Background: Despite the current popularity of free-flap procedures, pedicled flaps remain a reliable and versatile technique in hand surgery worldwide, with low donor-site morbidity. [1] Immobilisation of the upper limb (UL) until division of the pedicle is key to success, with various methods described including axillary block, elastic dressing wraps, plaster and external fixators. [2] This is a case of successful supraclavicular brachial plexus block (SCBPB) and continuous supraclavicular block (ContSCB) for analgesia and complete UL immobilisation following pedicled groin flap (PGF).

Case report: A 62-year old man with distal radius lesion treated 30 years prior with excision, radiotherapy and fibular head reconstruction, presented with a 3-month history of discharging wound and visible bone. He had a fixed and deviated wrist with overlying ulcer consistent with osteomyelitis and malunion of fibular head bone graft, and a background of non-insulin dependent diabetes mellitus and hypercholesterolaemia. After multidisciplinary planning, he underwent combined ortho-plastic surgical excision of necrotic distal radius, insertion of antibiotics and bone graft substitute and resurfacing with PGF. To ensure good pain relief and decrease risks of flap disruption on emergence from general anaesthesia (GA), a SCBPB and (ContSCB) catheter were placed under GA. Emergence from 12-hour anaesthesia was smooth, with complete motor and sensory regional block of the operated UL for the next 20 hrs.

Discussion: Anaesthetic planning was vital as wrist movement at time of waking and recovery from GA risked pedicle tension or torsion, and potential flap failure. While axillary block is described in the literature, the SCBPB ensured motor block from shoulder down and complete immobilisation of the wrist, while also allowing excellent regional analgesia for the crucial post-operative period.

Learning points: Supraclavicular brachial plexus block ensured both upper limb immobilisation and analgesia, thereby contributing to the success of the flap. With practical advantages over the axillary site, we advocate this, in combination with GA, as an appropriate anaesthetic technique for patients undergoing pedicled groin flap procedures.

References:

1. McGregor IA, Jackson IT. The groin flap. *Br J Plast Surg* 1972; 25:3-16
2. Bekler H, Beyzadeoglu T, Mercan A. Groin flap immobilisation by axillary brachial plexus block anaesthesia. *Tech Hand Up Extrem Surg* 12(2):68-70 June 2008

Steroid-induced hiccups – a case study

Osborne F¹, Norman H², Jamhour S³, DaSilva EJ³

1. Queen Elizabeth Hospital, Birmingham UK, 2. University College London, London, UK 3. Royal Orthopaedic Hospital, Birmingham, UK.

Background:

Hiccup reflexes are poorly understood. This is a case of a patient who, following an arthroscopic shoulder procedure, developed severe intractable hiccups, thought to be secondary to administration of IV dexamethasone.

Case report:

A 42 year old man with no known allergies or chronic medical conditions presented for subacromial decompression and excision of distal clavicle. His induction and maintenance anaesthesia was uneventful. He received dexamethasone 6.6mg for antiemesis. Interscalene brachial plexus block was performed asleep, using an in-plane ultrasound guided technique with nerve stimulation. The phrenic nerve was visualised anterior to the Scalenus Medius muscle and avoided.

24 hours later, the patient reviewed in the emergency department for severe intractable hiccups which responded temporarily to intramuscular chlorpromazine. A week later, the patient was reviewed. Hiccups continued, but examination was otherwise unremarkable and ultrasound revealed no abnormality along the cords and branches of the brachial plexus. On this occasion he mentioned a previous episode of persistent hiccups occurring after intra-articular steroid injection two year prior.

The patient was commenced on chlorpromazine, baclofen and pregabalin. His hiccups reduced within one hour of starting the medication and by day 11 had stopped completely.

Discussion:

Steroid administration by various methods have been implicated. There have been no case reports of hiccups being caused by a single dose of dexamethasone given for anti-emesis as part of a general anaesthetic, or as a recurrent phenomenon happening to the same patient after a period of time, suggesting that this patient is somehow predisposed to this unusual side effect of steroid drugs.

Learning points:

This case presents a rare complication of a commonly used drug within anaesthesia and the aim of reporting is to increase awareness amongst medical staff who may be administering steroids on a regular basis. Intractable hiccups can be distressing for the patient and it is important that these patients are investigated and managed appropriately, and the patient counselled as to the likely cause.

How can we improve our trauma and orthopaedic theatre lists? – a quality improvement project with the aim to produce a new standard

Marjan Raad, Siddharth Virani, Sheela Vinay, Philip Housden

William Harvey Hospital, Trauma & Orthopaedics, Ashford, United Kingdom

Background

Orthopaedic theatre lists are an important tool which must convey essential information to all staff to run an effective and safe theatre list. However, there are no set standards or guidelines on the components of an Orthopaedic theatre list. The objective of this study is to formulate guidelines for theatre lists which improve efficiency and reduce errors.

Methods

We looked at 326 elective Orthopaedic theatre lists from October to November 2018. Various factors such as: theatre and patient demographics, Surgical team (Consultant in charge, operating Surgeon, first assistant, lead Anaesthetist), type of anaesthesia (GA, LA, regional, sedation), Surgery (side, operation, prosthesis/equipment, cemented/uncemented, fluoroscopy or surgical representative required), acronyms and finally extra information such as allergies, infection, disabilities, comorbidities and HDU/ITU requirements. Additionally, a survey was distributed to a variety of theatre staff to understand their requirements from a theatre list. Thereafter, we created a proforma for waiting list coordinators to ensure relevant details above were acquired and mentioned on the lists. Subsequently, we re-audited six more weeks of theatre lists (255) from November to December 2019.

Results

Results show the Orthopaedic Consultant in charge was noted for 100% of patients compared to 85% previously. There was an improvement in documenting the required anaesthesia such as noting 14.5% required spinal compared to 0.3% previously and 3.9% required LA compared to 0.9% noted previously. Prosthesis/equipment was mentioned for 34% of patients compared to 23%. Fluoroscopy was noted as being required for 25% of patients compared to 11%. There was a 49.2% increase in how often we noted extra information. The use of acronyms declined significantly.

Conclusion

We believe standards should be in place in order for us to follow to ensure we carry out safe and efficient Orthopaedic theatre lists, and these standards should entail the parameters we have audited.

Our experience with peripherally inserted central catheters (PICC) at a tertiary orthopaedic hospital- A analysis of complications over the last 5 years.

S Dsouza, C Crick, S Chin, R Krishnan.

Royal National Orthopaedic Hospital(RNOH), Stanmore, London, UK

Peripheral inserted central catheters (PICCs) are non-tunnelled vascular access devices which are usually inserted into the deep veins of the upper limb. At the RNOH, there is a dedicated weekly half-day theatre session for PICC insertion and five anaesthetic consultants are available to insert and manage PICCs during routine working hours. Our aim was to examine the complication rate associated with PICCs inserted for parenteral antimicrobial administration over the last 5 years.

Methods: Between 1st April 2015 and 28th Feb 2020, a clinical nurse specialist followed up all patients on a routine basis. Follow up consisted of a weekly telephone call where questions were asked and concerns were addressed and a six-weekly face-to-face clinic appointment. Patients were encouraged to contact us if there were any further problems.

Results: A total of 498 PICC lines were inserted, the overall number of PICCs inserted have decreased every year. There were 247(49.6%) males and 251(50.4%) females. The average age was 64 years(range 6-82).The most common indications were prosthetic joint infections 369(74%), osteomyelitis 68(13.65%),spinal infections 46(9.23%) and miscellaneous (3.01%). The overall complication rate was 12.65% and 2.82 per 1000 PICC days. On average the incidence of symptomatic upper extremity venous thrombosis (UEVT) and infection was 2(0.40%) and 5(1%) respectively. The rate of migration showed a progressive decline from 7(4.43%) in 2015-16 to 1(2.56%) in 2019-20. The overall numbers of PICCs that occluded range from 8(5.06%) in 2015-16 to 3 (7.69%) in 2019-20, The percentage increase could be attributed to a reduction in overall PICC line numbers. Our overall complication rate of 2.82 per 1000 PICC days was significantly lower than that reported by a retrospective study which evaluated PICC line complications (9.2 per 1000 PICC days) in patients who needed long term antibiotics[1].

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	2015/16	2016/17	2017/18	2018/19	2019/20
PICC numbers	158	149	81	71	39
PICC line days	6630	6666	3743	3137	2146

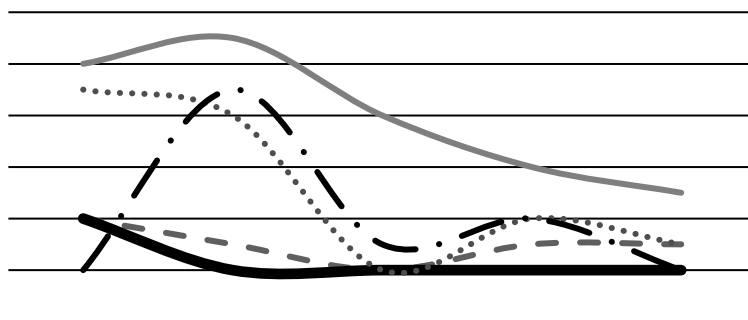


Table 1 showing the numbers of PICCs inserted every year.

Graph 1 is a graphical depiction of PICC complications over the last 5 years. This graph shows infection (gray dashes), DVT (black bold lines), occlusion (gray line), migration (gray dots) and others (black dots and dashes)

Tapia's syndrome: a case report examining the beach chair position

A. Gribble, C. Wang and T. Tanqueray

Homerton University Hospital, London, UK

Background: Tapia's syndrome is an ipsilateral combined hypoglossal and recurrent laryngeal nerve palsy that causes loss of tongue motor function and an adducted vocal cord. Tapia's syndrome has been attributed to airway manipulation, pressure neuropathy from orotracheal intubation, interscalene nerve block and intra-operative patient positioning [1, 2]. We report a rare case of Tapia's syndrome where no nerve block was conducted and the patient was in the beach chair position.

Case report: A 25 year-old 45kg ASA 1 female underwent a right clavicular plating under general anaesthesia. Her airway was secured with a Mackintosh size 3 blade and size 7.0mm reinforced endotracheal tube. Her head was carefully strapped into the beach chair headrest and slightly rotated to the left to enable surgical access with adequate padding around pressure areas. Surgery lasted ninety minutes and extubation was uneventful.

The patient presented one day post operatively with right sided tongue deviation, whispering voice and reduced tongue mobility. She had no dysphagia or respiratory compromise. She was referred to Neurology who advised conservative management as her symptoms were improving. Imaging was not warranted given the lack of additional neurological deficit. Her symptoms resolved by three months.

Discussion: Whilst the cause of Tapia's Syndrome cannot be confirmed, it is considered most likely due to patient positioning given the patient's small body habitus in the beach chair and the need to rotate the head left. In the beach chair a small positional change can modify the trunk in relation to the headrest and cause hyperextension [1]. Another possibility is the endotracheal tube exerting pressure at the crossing of the vagal and hypoglossal nerves [1].

Learning points: It is important to consider the risks associated with the beach chair position [3] and whether different size beach chairs should be used depending on patient size. This case highlights the importance of measuring endotracheal tube cuff pressures. The role of the multi-disciplinary team in the follow up and management of post operative nerve damage is demonstrated.

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Mobilisation of an ERAS protocol following total knee replacement: improving patient length of stay and post-operative analgesia

J. Shepherd, C. Mayes and R. Thomson

Aberdeen Royal Infirmary, Aberdeen. UK

Enhanced Recovery After Surgery (ERAS) has been shown to reduce patient length of stay (LOS) following total knee replacement (TKR), specifically focusing on early mobilisation of patients through implementing effective post-operative analgesia [1]. Despite improvement in average LOS from TKRs between 2016 to 2018 (6 days to 5 days), NHS Grampian remained an outlier to other similarly sized centres according to the Scottish Arthroplasty Report [2, 3]. Following changes to the ERAS Programme in NHS Grampian, this study aims to evaluate the LOS following TKR, comparing this to previous local data and national figures, and to evaluate the use of postoperative analgesia

Methods: Retrospective data was collected from all patients who underwent a TKR over a five-month period (April to August 2019) in a single centre within NHS Grampian. Data was collected and analysed from a proforma filled in by the ERAS team and included patient LOS, type of anaesthesia administered, breakthrough oral or IV analgesia and patient controlled analgesia (PCA) use. Data was analysed using GraphPad prism statistical software.

Results: A total of 175 procedures were carried out over this period. Of these, 27 (15.43%) underwent general anaesthetic, 146 (83.43%) spinal anaesthetic and 2 (1.14%) both general and spinal anaesthetic. Mean LOS was 3.335 days (SD 1.747) with no significant difference ($p=0.13$) between spinal (mean 3.25, SD 1.475) and general anaesthesia (mean 3.808, SD 2.815). 143 patients (81.7%) required four or less doses of breakthrough analgesia on their first post-operative night, with only 2 (1.1%) requiring IV analgesia and 1 (0.57%) requiring PCA. Following changes to the local ERAS protocol, LOS following TKR has improved compared to previously reported figures and is favourably comparable to other health boards nationally. LOS did not differ significantly between general and spinal anaesthesia. Effective post-operative analgesia is demonstrated by the low requirement for IV analgesia or PCA and reduced use of breakthrough analgesia. Standardisation of intra-operative analgesia, patient education and early mobilisation all potentially contribute to efficacy of analgesia post-operatively.

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Analgesia post primary knee arthroplasty

M. Sarsam, M. Moawia, J. Veitch

Nottingham City Hospital, Nottingham, UK

All post-operative knee arthroplasty patients arrive on the ward with analgesia prescribed as per Nottingham University Hospitals Trust Enhanced Recovery After Surgery guidelines. After subjective observation of poor pain management post-operatively, a questionnaire was designed and distributed between March and June 2019. Deficiency in pain management was identified. Findings were discussed with orthopaedic consultants, consultant anaesthetists, senior nurses and the chief physiotherapist, consequently local guidelines were modified, junior doctors received education on analgesia prescribing and the audit was repeated between September and December 2019.

Method: A patient questionnaire was designed and distributed to 40 consenting patients post primary knee arthroplasty. It was completed on the evening of day 1 after surgery and patients rated their overall pain, as well as their worst pain and timing, on a visual analogue scale of 1-10 (10 being worst pain imaginable). They were also asked if the pain has limited their engagement with physiotherapy. Patient drug charts were reviewed post discharge and all their analgesia during admission was noted and analysed.

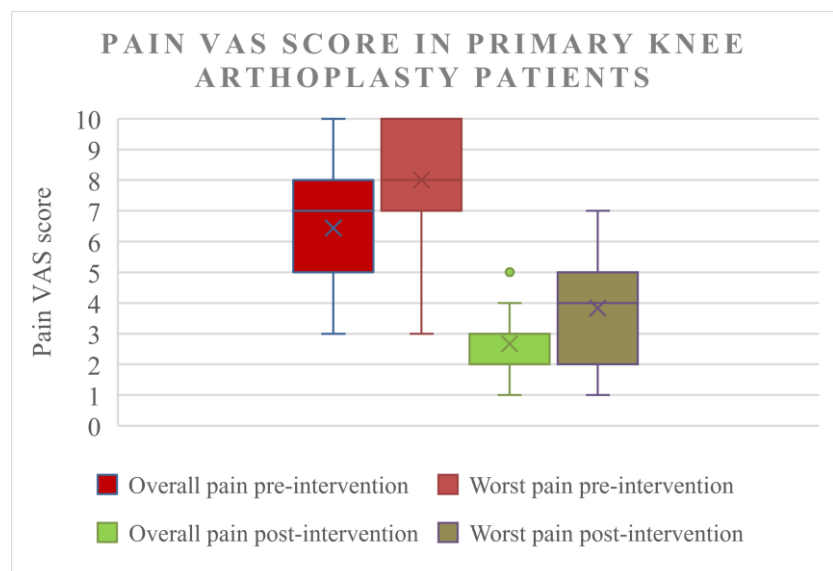
After the initial study, local guidelines were revised, an education programme was undertaken then a further study was initiated.

Results: Pain scores for worst pain were reduced from 8.0 (range 3-10) to 3.8 (range 1-7), while overall pain went down from 6.5 (range 3-10) to 2.7 (range 1-5).

Only 17.9% of patients thought pain compromised their physiotherapy engagement in comparison to 28% initially. The pain peak on the morning after surgery which was seen in the initial audit has been eradicated.

Despite only 28% of patients receiving NSAIDs in the re-

audit, both audits show that in those patients who had at least 1 dose of NSAIDs had 25% lower pain score.



Conclusion: Adequate analgesia post primary knee arthroplasty is essential for pain management, improving compliance with physiotherapy and early discharge of patients post-operatively. Timing of opiate analgesia, the use of NSAIDs and appropriate clinician education on analgesia prescribing can have a significant effect on post-operative pain management.

ANAESTHETIC Sprint Audit of Practice: An Audit of Anaesthetic Management of Neck of Femur Fractures at a District General Hospital and Consequent Implementation of Local Guidelines

J. Carvalho*, J. Kuzhively*, A. Ahmad[†] and S. Jayasundera[†]

**John Radcliffe Hospital, Oxford, UK;* [†]*Wexham Park Hospital, Slough, UK*

Hip fracture is the most common reason for an older person to need surgery and anaesthesia, and its outcome serves as a marker of the quality of hospital care. [1] The national Anaesthetic Sprint Audit of Practice (ASAP) sets out standards of practice (Standards) against which individual hospitals can assess their performance, in respect of such patients. [1, 2]

Methods: Anaesthetic charts of 64 patients who underwent hip fracture surgery from 1 March to 30 April 2018 at a District General Hospital were reviewed. The data collected from the anaesthetic charts was based on the ASAP data collection proforma and was compared against 12 ASAP Standards. The audit did not require ethics approval but was registered with the hospital's audit committee.

The data collected or derived from the anaesthetic charts included grades of surgeon and anaesthetist, patient comorbidities, surgical procedure and anaesthetic technique, details of neuraxial and regional anaesthesia, pre-induction systolic, diastolic and mean arterial blood pressures and percentage drop in these values intra-operatively, complications arising from insertion of bone cement and duration of hospital stay.

Results: The audit showed both very strong and very weak conformity between local practice and the ASAP Standards. Local practice was >80% compliant with five of the Standards. Compliance exceeded 90% in respect of seniority of surgeon and anaesthetist, use of neuraxial anaesthesia, restricted intrathecal opioid use and oxygen supplementation. Compliance with the other seven Standards was markedly lower, below 30% in most cases. Variance from the Standards was noted with dose of local anaesthetic used in subarachnoid block, choice of sedation agent, use of inhalational induction and spontaneous ventilation techniques and finally, monitoring and management of hypotension and Bone Cement Implantation Syndrome. The results of the audit were used to develop trust-wide "Anaesthetic Management of Neck of Femur Fractures" Guidelines, which were published within six months of the audit.

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Learning ultrasound guided neuraxial technique in the emergency setting during the covid-19 era

M. May, S. Galitzine, J. Matthews

Oxford University Hospitals, Oxford, UK

Background: Spinal anaesthesia is a common technique for lower limb surgery but can be difficult in the elderly population owing to spinal pathology. We report this case of a senior anaesthetic trainee learning to perform a neuraxial technique using ultrasound on a patient with spinal pathology requiring surgery for periprosthetic femoral fracture during the 2020 Covid-19 pandemic.

Case report: An 81-year-old male was listed for a right revision hip replacement following periprosthetic fracture during the 2020 Covid-19 pandemic. The patient had scoliosis and had previously undergone a lumbar decompression. A recent MRI report described an exaggerated lumbar lordosis and a significant scoliosis with moderate to severe canal narrowing at L4/5. The patient was induced and intubated in theatre and maintained with volatile anaesthesia. All staff wore full personal protective equipment (PPE) including an FFP3 mask or equivalent. Once anaesthetised, the patient was placed in the left lateral position and an experienced anaesthetic consultant demonstrated neuraxial ultrasound imaging with a curvilinear probe. Using this information, the senior trainee was able to perform a successful spinal anaesthetic on the first needle pass.

Discussion: Ultrasound has the potential to be an extremely useful tool in the performance of neuraxial procedures. It can be used to identify a safe level for needle insertion, to identify the midline, to estimate the depth of the spinal canal and show any longitudinal rotation of the spine [1]. This can reduce time to successful dural puncture [2, 3], improved patient satisfaction [2] and reduced complication rate. This case demonstrates ultrasound can render a difficult spinal straightforward and it is possible to learn a new skill despite the communication difficulties presented by PPE.

Learning points: It takes experience to interpret neuraxial ultrasound imaging and initial practice with straightforward backs would be useful. Despite the communication difficulties presented by wearing FFP3 masks it was possible to teach this skill and we would argue that it should be taught routinely at an earlier stage of training to realise its true potential.

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Evaluation of pre-operative analgesia received by patients admitted with fractured neck of femur at Worthing Hospital.

Dawe H, Holcombe-Law R A

Worthing Hospital, Western Sussex Hospitals, Worthing, UK

Pre-operative fascia iliaca compartment blocks (FIBs) provide safe and effective analgesia for patients with fractured neck of femur (#NOF)[1]. Their use is recommended by the National Institute of Clinical Excellence (NICE) [2] and the Association of Anaesthetists of Great Britain and Ireland (AAGBI)[3]. Our hospital pathway includes a fascia iliaca block performed in the Emergency Department followed by regular modified release oxycodone and paracetamol. Immediate release oxycodone is administered as required. Patients occasionally receive a fascia iliaca catheter (FIC) with continuous infusion of local anaesthetic if surgery is likely to be delayed or is deemed inappropriate. This audit aimed to evaluate adherence to this protocol.

Methods: We retrospectively reviewed medical documentation from 20 patients presenting with #NOF to Worthing Hospital.

Results:

- Our sample consisted of thirteen females and seven males.
- 10% of patients had their operation performed more than 24 hours after admission.
- 70% received a FIB but no repeat FIBs were performed and no FICs were inserted.
- Mean time from admission to FIB was 2 hours and 32 minutes.
- Where FIB was not performed due to technical difficulty, no documentation could be found for anaesthetic assistance being sought.
- 95% received at least one paracetamol dose pre-operatively, but only 50% were prescribed it regularly.
- Mean time from admission to oxycodone administration was 9 hours and 54 minutes.
- Mean oxycodone total dose per day was 23mg.
- Mean number of PRN doses was 2.4.
- The patients requiring highest daily dose and highest PRN frequency both did not receive FIB.

Areas for improvement identified include:

- Liaising with the Emergency department to support FIB service.
- Education surrounding effective and safe prescribing.
- Working with the ward team to improve consideration of repeat FIB or possible FIC when surgery is delayed.

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Accuracy and clinical implications of estimated GFR versus calculated GFR in patients undergoing primary lower limb arthroplasty

Gnap R1, Churton A1, Doleman B1, Veitch J1

1. Nottingham University Hospitals Trust, Nottingham, United Kingdom

The routine care of pre-operative patients awaiting lower limb primary arthroplasty involves estimation of renal function, commonly calculated by CKD-EPI formulae and reported as estimated glomerular filtration rate (eGFR). This calculation is based on serum creatinine, age and sex. However, it is accepted that inaccuracies exist in this method[1].

Prescribing guidelines frequently have recommendations based on renal function to avoid complications of nephrotoxicity or accumulation of drugs due to reduced excretion. This study aimed to quantify the extent of the inaccuracies in eGFR reporting by comparing to a calculated BMI-adjusted Cockcroft-Gault GFR, and to identify any cases with resultant clinical implications.

Methods

For all primary lower limb arthroplasty patients between 04/01/2020 to 14/02/2020, the serum creatinine, eGFR, age, height, weight and sex were obtained from databases, allowing calculation of the Cockcroft-Gault glomerular filtration rate (CG-GFR), which was then modified for body mass index (BMI-adjusted CG-GFR)[2].

139 patients were identified; 83 females and 56 males. The patients were fairly evenly split between total knee replacements and total hip replacements (68 vs 71 respectively). Patients undergoing partial hip or knee replacements were excluded due to their small number. All data fields were compared individually for measurements that would change the perioperative prescribing; below 60ml/min/1.73m² for avoidance of gentamicin, non-steroidal anti-inflammatory drugs (NSAIDs) and oral morphine in the elderly; and below 30ml/min/1.73m² for avoidance of NSAIDs in those less than 65 years old[3]. Clinically significant differences were defined as when a patient's BMI-adjusted CG-GFR would preclude the administration of one of more medications wherein the eGFR would have allowed administration.

Results

Thirteen patients (9%) had a BMI-adjusted CG-GFR that was clinically significantly different from the eGFR. This may have permitted administration of certain nephrotoxic drugs which could have contributed to acute kidney injury, which affects up to 20% of inpatients and contributes to longer term increased mortality and development of chronic kidney disease. There was less variability between estimated and calculated GFR at lower values where, clinically, accuracy matters most.

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Challenges of central neuraxial anaesthesia and sedation in obese and morbidly obese patients undergoing prolonged lower limb free flap surgery

J. Kuzhively, S. Galitzine

Nuffield Department of Anaesthetics, Oxford University NHS Hospitals Trust, Oxford

High BMI is associated with increased technical difficulties and complications of both general and regional anaesthesia [1-3]. While central neuraxial anaesthesia and sedation (CNA+Sed) can be advantageous for prolonged lower limb free tissue transfer (LLFTT) surgery, high BMI can make its management more challenging.

Methods: As part of ongoing clinical audit of CNA+Sed for prolonged LLFTT surgery in our centre, we reviewed the subgroup of patients with BMI \geq 30 in order to identify specific challenges with CNA+Sed and discuss the strategies to mitigate them.

Results: Since 2007 over eighty LLFTT operations in our centre were performed with CNA+Sed by or under supervision of the same anaesthetist. We identified 20 patients with BMI \geq 30 (obese) and of those four patients had BMI \geq 40 (morbidly obese). All procedures were in supine position and took from 6hr48min to 13hr45min. Insertion of neuraxial block was successful at first pass in seven patients. Ultrasound assistance was used in 10 cases. Maintenance sedation was provided using propofol TCI, midazolam and/or fentanyl boluses as required. In three patients, audio-visual distraction (AVD) was used, reducing sedation requirements. In 10 patients, ketamine was added to propofol (1:5) for deeper sedation. With the advent of high flow nasal oxygenation (HFNO), two patients with obstructive sleep apnoea had HFNO to aid oxygenation under sedation. Intraoperatively, there was one conversion to GA, due to patient anxiety. All patients were managed in the nurses-led HDU postoperatively. There were no ITU transfers. Epidural analgesia was continued for 3-4 days in all patients but one. The same patient had a primary flap failure, with BMI 42.3 being a contributing factor [3]. While numbers are small due to the nature of surgery, our results reassure that CNA+Sed provides safe anaesthesia for prolonged LLFTT surgery in high BMI patients. Risk minimising strategies include US-assisted CNA to minimise technical difficulties; HFNO and ketamine to maintain the airway and improve oxygenation during deep sedation; AVD to alleviate anxiety and reduce sedation.

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Frailty in the elective orthopaedic population: assessing the population and designing a service to manage frail patients

Y. Ghumra, V. Thanawala

Nottingham University Hospitals NHS Trust, Nottingham, UK

Frailty is a syndrome of reduced physiological reserve based on composite functional and physiological limitations, affecting outcomes within many surgical disciplines. Managing frailty in patients of all ages in the peri-operative period is predicted to consume vast amounts of time, resources and personnel in the future [1]. The service improvement project therefore undertaken at Nottingham University Hospitals (NUH) attempted to identify the scope of moderate to severe frailty amongst the elective orthopaedic population and to introduce an appropriate service to manage and optimise this cohort of patients pre-operatively

Methods

Over a period of five weeks patients presenting to the pre-operative elective orthopaedic clinic undertook a nurse-conducted frailty assessment using the validated Edmonton Frailty Score. This exercise allowed the team to obtain data on the prevalence of various degrees of frailty within that population. A search of literature failed to find single conclusive system to preoperatively manage this cohort, so the team conducting this project at NUH decided that severely frail patients would be seen in a face-to-face meeting and moderately frail patients would have an anaesthetic notes review.

Results

Over five weeks, 262 patients underwent a frailty assessment in the elective orthopaedic pre-op clinic. Of these, three patients were identified as having severe frailty and six patients were scored as moderately frail. As far as increasing the burden on a service, the sample size suggested a minor burden to the system that was well within the ability of the current anaesthetic service. Whilst a SCOPES (systemic care of patients in elective surgery) service run by the orthogeriatric team exists at NUH it currently has little anaesthetic input. This exercise prompted anaesthetic into the SCOPES clinic to review those specific patients flagged up as severely frail, in order to optimise fitness for surgery in all aspects. The sample sizes of moderate to severely frail patients suggest that the true success of this program will be seen over a large number of months and maybe years.

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CASE SERIES: Using high flow nasal oxygen (Optiflow) with deep sedation for complex orthopaedic operations

L. Y. Tee, S. Galitzine, O. McMahon, J. Kuzhively, V. Athanassoglou

Nuffield Department of Anaesthetics, Nuffield Orthopaedic Centre, Oxford University Hospital, UK.

Background: Recent evidence on the advantages of regional anaesthesia (RA) in orthopaedic surgeries has increased the demand for perioperative sedation. Hypoxaemia becomes a cause for concern when deep sedation is requested especially for patients at high risk of desaturation, such as patients who are obese or with respiratory illnesses. The use of Optiflow for procedural sedation has been reported for endoscopic [1], bronchoscopic and dental procedures but we are not aware of it being described in orthopaedic surgery.

Case report: Data from 35 orthopaedic patients who had regional anaesthesia and sedation for their operations was collected. Mean age and weight were 52 years old and 106kg. BMI ranges from 27 to 50. 14 patients have obstructive sleep apnoea. The mean duration of operation was 129 minutes. Sedation was maintained at RASS score of -2 to -3. No patient had desaturation or intraoperative GA conversion.

Discussion: Compared to standard oxygen therapy, studies have shown that Optiflow can achieve higher FiO₂, provide low level positive end-expiratory airway pressure and reduce arterial CO₂ concentration through the washout of anatomical dead space [2]. These features of Optiflow have allowed the provision of deep sedation and anxiolysis for our high risk patients undergoing complex orthopaedic operations without any adverse events. Avoiding general anaesthesia in these patients has obvious advantages since they are at greater risk of airway difficulties, pulmonary complications, awareness under general anaesthesia and overall increased morbidity and mortality [3]. Using Optiflow with sedation is a feasible and safe alternative to GA.

Learning points: Optiflow increases the safety of intravenous sedation and can be used safely in patients at risk of hypoxemia and apnoea requiring sedation for complex orthopaedic operations mitigating the risk of intraoperative GA conversion.

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Analgesia Nociception Index Potential Use for Chronic Shoulder Pain Detection

Authors: Sabine Zande, Dr.Med.Iveta Golubovska, Dr.Med.Aleksejs Miscuks

Department of Anaesthesiology, Hospital of Traumatology and Orthopedics, Riga, Latvia
Faculty of Medicine, University of Latvia, Riga, Latvia

Analgesia Nociception Index (ANI) is a new method used to measure acute pain while the patient is unconscious. ANI's greatest benefit is measuring surgical stress and preventing intensive pain in surgical and intensive care patients. Technology uses algorithms analysing R-R complexes and breathing rate therefore assesses patient condition and his sympathetic and parasympathetic nervous systems activity. This innovative technology allows doctors to make an individual way of dosing analgesic drugs to every patient.

While ANI shows good results in the detection of acute pain patient being unconscious – at this moment trials for chronic pain detection is still in process. The objective of our pilot study was to determine the usefulness of ANI for chronic pain intensity detection. It was hypothesized that ANI may be used for chronic pain detection and an indicator of the effectiveness of therapy.

Methods: The pilot study was conducted in “Hospital of Traumatology and Orthopaedics” after Ethics Committee approval on July 2020. Nine patients suffering from chronic shoulder pain participated in this study. ANI was monitored in dedicated time cuts (while rested, after provocations tests and after suprascapular nerve blockade).

Results: In eight (88,8%) out of nine patient’s significant changes took place. Figure.nr.1. indicates that Analgesia Nociception Index increased significantly after peripheral nerve block: 58 ± 7 comparing with results before peripheral nerve blockade $40,8 \pm 11$ ($p=0.004$).

We concluded that ANI could be potentially useful tool for measurement and treatment of chronic pain.

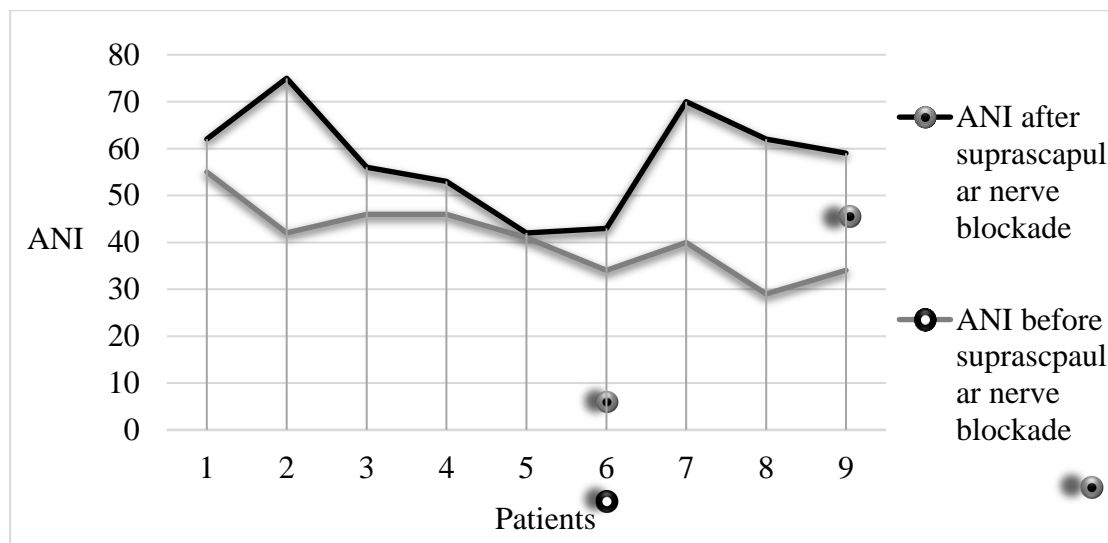


Figure nr.1. (Changes in ANI value before and after Suprascapular nerve blockade)

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Optimising perioperative analgesia in ACL repairs (Audit)

F. Hull, A. Huckle, V. Thanawala

Nottingham University Hospitals NHS Trust, Nottingham, UK

The average length of stay (LoS) for Nottingham University Hospitals (NUH) Trust following Anterior Cruciate Ligament Repair (ACLR) from April 2017- March 2018 was 1.35 days compared to a national average of 0.13 days based upon the service level report generated by GIRFT (Get It Right First Time) for the Trust. Reduction in LoS in line with the national average could help save an estimated £45000 pounds by facilitating day case surgery and avoiding inpatient stay . We evaluated anaesthesia services and specially looked at post-operative pain and PONV (post-operative nausea and vomiting) - which could be contributing to this increased LoS, and have recommended changes in practice which could help facilitate on-the-day discharge.

Methods: Data collected for 113 patients who underwent ACLR in NUH between March 2018 and March 2019. We collected and analysed pain and PONV scores in recovery, and at six, 12, 18 and 24 hours postoperatively using electronic observation data.

Results: PONV was well controlled with only two percent of patients experiencing it in recovery and 9% at six hours post-operatively. Forty-seven patients (43%) experienced moderate to severe pain in the recovery room and 11 patients (10%) experienced moderate to severe pain at six and 12 hours. Sixteen patients (14%) received intra-op local anaesthetic infiltration or regional anaesthetic nerve block, with seven of these (6%) experiencing moderate-severe pain in the recovery room. No significant intra-operative variations in systemic or regional analgesia were identified. Use of intra-op local anesthetic infiltration has been shown to improve pain control for up to 24hrs in ACLR [1]. We suggest use of local anaesthetic infiltration or regional anaesthetic nerve block for all patients and recommend the use of multi-modal post-operative analgesia consisting of paracetamol, NSAID and strong opioid for the first 48 hours to provide optimal analgesia, facilitate day case surgery, improve patient satisfaction and experience and save revenue for the Trust.

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Restoration of elective surgery following the SARS-CoV-2 pandemic in a tertiary specialist centre

HK. Ubhi¹, Z. Nassa¹

The Royal Orthopaedic Hospital, Birmingham. UK

Thresholds for elective surgery during the SARS-CoV-2 pandemic were universally raised due to its impact on postoperative recovery and perioperative mortality [1]. After the surge in cases over spring and early summer, overall perioperative risks remained higher than before the pandemic, but nationally elective surgery was considered safe to resume. Guidelines for patient selection were decided at local level.

Methods: Patients at our centre were selected for surgery on a medical or surgical priority basis. We carried out a retrospective audit of all patients who presented to our Pre-operative Assessment Department in June 2020. Patient factors including BMI, BAME status, co-morbidities, nature of surgery and length of stay (LOS) were considered and the incidence of perioperative complications assessed. All patients were required to isolate for 14 days and required two negative throat and nose swabs (days 11 and 13) to proceed to admission [2].

Results: A total of 239 patients were reviewed in this period. 205 (85.8%) underwent surgery, 94 (45.9%) males and 111 (54.1%) females. Forty-four (46.8%) males had a BMI >30 versus 46(41.4%) females. Sixty-three (56.8%) female and 62 (66%) males were aged >60. Twenty (9.8%) patients belonged to minority ethnic groups, with an equal male and female divide.

Ninety-one (44.4%) patients had cardiac disease, 38(18.5%) respiratory disease. One hundred and seventy (82.9%) had one to six co-morbidities and 23(11.2%) patients had no co-morbidities. Three patients of the total 239 failed to meet the admission criteria, at assessment.

Of the procedures undertaken, 58(28.3%) primary Arthroplasty versus 13(6.3%) revision Arthroplasty, Spinal surgery 32(15.6%), Orthopaedic Oncology 21(10.2%) and Radiologically guided procedures 6(2.9%).

LOS was > one day in 149 (72.7%) patients, reflecting complexity of surgery. Eight (3.9%) had inpatient swabs taken due to suspected SARS-CoV-2 symptoms (negative). Mortality for all assessed admissions was 0%.

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Improving perioperative outcomes in hip fracture patients – a quality improvement process

E. Makmur, K. Williams, G. Mathew

Southend University Hospital, Southend-on-Sea, UK

Hip fracture patients are frail and benefit from multi-disciplinary care with formalised care pathways. Key issues including delirium, mobilisation, pain and anaemia are emphasised nationally [1]. We introduced anaesthesia guidelines for hip fracture surgery in mid 2019 to standardise good practice and used it as a platform to launch our quality improvement project based on audit findings.

Methods: We audited all hip fracture patients from December 2019 to January 2020. Data was collected following clinical governance approval, on anaesthetic techniques and post-operative complications. Descriptive statistics were performed with Microsoft Excel. New issues were identified - leading to the launch of a quality improvement process engaging all trauma anaesthetists and the wider multidisciplinary team.

Results: Fifty patients of median age 84 and median length of stay of 15 days (11-20) were included.

Anaesthesia technique			
Spinal anaesthesia	26 (52%)	General anaesthesia	24 (48%)
Intrathecal opioids	7 (26.9%)	Intraoperative opioids	10 (41.6%)
Sedation with spinal	13 (50%)		
Peripheral nerve block (PNB)		40 (80%)	
Tranexamic acid (TXA) administration		24 (48%)	
Post-operative issues			
Blood transfusion	16 (32%)	Chest infection	17 (34%)
Inadequate analgesia	2 (4%)	Pulmonary embolism	1 (2%)
Delirium	16 (32%)	Cardiovascular	3 (6%)
Limited mobilisation	12 (24%)		

Eleven (68.8%) patients receiving transfusion did not receive TXA intra-operatively. Chest infections were comparable after spinal and general anaesthesia (nine vs. eight respectively). The two inpatient deaths were due to pneumonia and both underwent general anaesthesia.

Discussion: Our quality improvement project has seen an increase in PNB rates and reduction in opioids, alongside a current pivot towards reducing blood transfusions, delirium and chest infection rates. Following evidence-based presentations at governance meetings, departmental consensus was achieved on anaesthetic technique including low-dose spinal anaesthetic with avoidance of sedation and routine use of intra-operative TXA. Collaboration and additional training for physiotherapists led to peri-operative administration of chest physiotherapy for high-risk patients on orthopaedic wards. Building on our success we aim to further educate the multidisciplinary team and introduce patient information leaflets for chest physiotherapy.

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1. Royal College of Physicians. National Hip Fracture Database annual report 2019. London: RCP, 2019.

Devising a novel Triage system to identify high risk patients undergoing joint replacement surgery

V Padmanabhan, H Naqvi, S Sivasubramaniam

Sandwell & West Birmingham Hospitals NHS Trust

Introduction

- National Joint Registry data suggests that Sandwell & West Birmingham Hospitals NHS Trust (SWBH) patients are more complex with increased co-morbidities and yet have good outcomes for hip surgery. It was identified there was scope for improvement for knee replacement surgery. The Getting It Right First Time (GIRFT) national review in 2015 identified key areas for units to focus on which included length of stay and prolonged recovery. Length of stay (LOS) had huge variation among patients adding to increased burden due to increased resource use and poorer patient experience and outcomes.

Methods

- We studied all patients undergoing elective joint replacement surgeries in 2017 at SWBH from the trust data records retrospectively. We then identified various pre-morbid status for each patients and observed their postoperative complications and length of stay (LOS). We performed an in depth analysis of any correlation between various pre-operative factors and length of stay.

Results

- We identified 588 patients of whom 370 and 218 underwent knee and hip replacement surgeries respectively. The average age was 68.4 years. 186 (31.5%) had LOS of >5 days and 79 (13.5%) had LOS > 7 days. 54 (68%) of those who had a LOS >7days were found to be on 5 or more medications and 59 (75%) of them had clinical frailty. Amongst the patients who had LOS> 5 days, 75 (39%) of patients were anaemic preoperatively. 125 extra bed days were incurred by morbidities and treating complications.

Discussion

- From this data we have devised a triage system to identify patients hat may benefit from pre-optimisation prior to elective surgery. This system is based upon a surgical triage system for consultant led anaesthetic clinic.

Referral criteria for pre assessment clinic				
Age > 80				Refer to Preassessment Clinic
Age > 70	> 4 medications	OR	Using walking aid	
Age > 65	> 4 medications	AND	Using walking aid	
Clinical Discretion				

Action Plan: A simplified referral criteria to anaesthetic preassessment Clinic

BRITISH SOCIETY OF ORTHOPAEDIC ANAESTHETISTS

Oral Presentations

Prilocaine spinal anaesthesia for ambulatory orthopaedic surgery – case series of prilocaine use for total hip arthroplasty in a tertiary orthopaedic hospital

McMahon O, Bridge H, Holman L, Oxford University Hospitals NHS Foundation Trust

Rib fracture management in a Major Trauma Centre – a research & quality improvement project

C. Twohig, B. Ikponmwosa, N. Solanki, S. Funnell, and R. Bloomer, Kings College Hospital, London

Ankle block vs spinal vs general anaesthesia for day-case foot and ankle surgery. An audit of patient satisfaction and theatre efficiency.

C. McGrath, P. Merjavy, Craigavon Area Hospital, Portadown

Two consecutive major lower limb operations in a heart-lung transplant recipient in the COVID era: challenging patient in challenging times!

BJ. Bhaktavatsalam, S. Galitzine, J. Day, P. Hambly, J. Ferguson, Oxford University Hospitals NHS Foundation Trust, UK

Revisiting standardised consent documentation for orthopaedic central neuraxial blocks (CNBs): a quality improvement project (QIP)

BJ. Bhaktavatsalam, K. Wilson, S. Thirunagari, J. Matthews, S. Galitzine, Nuffield Orthopaedic Centre, Oxford University Hospitals NHS Foundation Trust, UK.

Prilocaine spinal anaesthesia for ambulatory orthopaedic surgery – case series of prilocaine use for total hip arthroplasty in a tertiary orthopaedic hospital

McMahon O, Bridge H, Holman L

Oxford University Hospitals NHS Foundation Trust

Background: Increasing demand for ambulatory surgery has stimulated debate regarding the ideal anaesthetic technique to facilitate safe early mobilisation. Studies demonstrate general anaesthesia (GA) for total hip arthroplasty is associated with increased rates of adverse events and marginally longer operating times [1]. However, spinal anaesthesia (SA) with long-acting local anaesthetics such as bupivacaine, may delay mobilisation due to prolonged motor block. This case series examines the use of prilocaine for SA in total hip arthroplasty.

Case series: We analysed 2% hyperbaric prilocaine use for SA in a series of 25 total hip arthroplasty cases in a tertiary orthopaedic hospital. We recorded the dose administered and time from intrathecal injection to 1st report of pain and to initial patient leg movement. Complicating factors and requirement for intravenous opiate administration were also documented. The median dose of prilocaine administered was 68mg (60mg-80mg). Median time to pain was 121mins (35–220mins) and to leg movement was 136mins (35–232mins). Intravenous opiate was required for analgesia during skin closure in 5 cases (20%) and one case required conversion to GA (4%).

Discussion: Key requirements for ambulatory surgery include a rapid onset and offset of anaesthesia, rapid recovery of protective reflexes, mobility and micturition, and good control of pain and nausea post-operatively [2]. Intrathecal prilocaine is licensed in the UK for use in SA for “short term surgical procedures”. NICE guidelines for intrathecal injection recommend 40–60 mg (maximum dose 80 mg). Dosing in this case series was consistently at the upper limit, however never exceeded the maximum dose and no complications associated with high doses were seen. Appropriate patient selection for this technique is paramount, being guided by complexity of operation, surgical skill and anaesthetic factors as GA conversion in a lateral position may be challenging.

Learning points: In this case series, median time to leg movement for prilocaine is short compared with bupivacaine, potentially facilitating early post-operative mobilisation. Prilocaine SA may provide an alternative approach for those not previously considered for ambulatory surgery due to co-morbidities.

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Rib fracture management in a Major Trauma Centre – a research & quality improvement project

C.Twohig, B.Ikponmwosa, N.Solanki, S.Funnell, and R.Bloomer

Kings College Hospital, London

Rib fractures are common following blunt thoracic trauma and are associated with high morbidity and mortality. Respiratory complications, including pneumonia, may occur in up to thirty percent of patients [1]. Providing adequate analgesia is key in the management of patients with rib fractures. At our institution, it was observed that significant delays were occurring in patients receiving adequate analgesia, especially regional analgesia. Our aim was to quantify and investigate the delay in regional analgesia, and, through a rib fracture care bundle, improve the management of this group of patients.

Methods: Data was collected at our institution, a London Major Trauma Centre (MTC) over three months in June-Aug 2019. All patients admitted to the MTC with new, radiologically confirmed, rib fractures were included. Patients whose inpatient admission was <24 hours, and those with incomplete Injury Severity Scores (ISS) were excluded. Demographics, injury and ISS, length of inpatient stay (LOS), operator, type, and time to regional anaesthesia were collected. Suitability of the referral was retrospectively analysed by the project authors. Patients were categorised into four standardised ISS groups (1-8, 9-15, 16-24, 25-49) [2]. Statistical analysis was undertaken on SPSS (IBM Corp.)

Following data collection and analysis, a comprehensive rib fracture care bundle was developed (including a new trust guideline, micro-teaching sessions, electronic order sets and observation sheets, and a patient information leaflet), covering the assessment and management of these patients from presentation in the emergency department through their inpatient stay and post-discharge.

Results: A total of 67 patients were included. Median age was 56 years (IQR 21) (79.1% male). Median ISS was 17 with the modal group being ISS 9-15. Median LOS was 13.78 days. Thirty-four (50.7%) patients were referred for regional anaesthesia, with all requests deemed appropriate. A total of 19 blocks were performed: 13 erector spinae, 2 serratus anterior, 2 thoracic epidural, and 1 suprascapular (1 block type unknown). All but one block were catheter insertions. Twelve blocks were performed by registrars and three sited by consultants (3 unknown grade). Mean time from admission to block was 52.8 hours (SD 39.3). Mean LOS for patients who received blocks was 16.0 days (95% CI 12.1-22.9) versus 17.5 days (95% CI 12.2-19.7) for those who did not. When LOS was adjusted for ISS, patients who received blocks in the 16-24 & 25-49 group had a shorter length of stay compared to those that did not (15.0 vs 18.7 days & 21.3 vs 29.3 days respectively).

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- 2 - Candefjord, S., Asker, L. & Caragounis, E. Mortality of trauma patients treated at trauma centers compared to non-trauma centers in Sweden: a retrospective study. Eur J Trauma Emerg Surg (2020)

Ankle block vs spinal vs general anaesthesia for day-case foot and ankle surgery. An audit of patient satisfaction and theatre efficiency.

C. McGrath, P. Merjavy

Craigavon Area Hospital, Portadown

Day-case anaesthesia should ensure patient comfort, analgesia and anti-emesis to promote high theatre turnover and efficiency, early patient mobilisation and prompt discharge home. The Association of Anaesthetists, in combination with the British Association of Day Surgery published guidelines in 2019 which recommended “all anaesthetists should be familiar with techniques that permit the patient to undergo a procedure with minimum stress and maximum comfort in order to enable early discharge, including regional nerve blocks and neuraxial blockade” [1]. Specifically, a recent 2020 PROSPECT guideline supported by ESRA recommended ankle block as the first line regional analgesic technique for hallux valgus repair surgery [2]. We undertook an audit to establish if ankle block alone generated higher patient satisfaction and a more timely discharge following day-case foot and ankle surgery than spinal or general anaesthesia.

Methods: Data was collected from a total of 28 patients undergoing foot and ankle surgery on a once-weekly list in a local day-case unit over a 3 month period. Various anaesthetic techniques were employed over this time period, including ankle block alone, spinal (combined with ankle or popliteal nerve blocks) and general anaesthesia. Patient satisfaction questionnaires captured a variety of data including pain scores, incidence of PONV and mobility whilst recovery nursing staff captured data on time to oral intake, time to physiotherapy review and time to readiness for discharge and actual discharge from hospital.

Results: A total of 28 patients were included in the audit with 19 (68%) undergoing ankle block alone. General anaesthesia was performed on 5 (18%) patients and 4 (14%) underwent surgery under spinal anaesthesia in combination with popliteal or ankle nerve block. Our key findings indicated that patients undergoing ankle block alone established oral intake more quickly (mean 15 minutes vs 76 minutes for GA vs 38 minutes for spinal), were ready for discharge more quickly (mean 56 minutes vs 163 minutes for GA vs 186 minutes for spinal) and experienced long lasting effective analgesia with a mean time of 18 hours from nerve block to experiencing first pain. Patients undergoing peripheral nerve blockade also reported higher satisfaction with regards pain relief, PONV, sore throat, dry mouth and drowsiness than those undergoing a general anaesthetic. We hope to use our findings to establish a local protocol on using peripheral nerve blockade alone, specifically ankle block, as the first line anaesthetic technique for day-case foot and ankle surgery within our unit.

References:

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Two consecutive major lower limb operations in a heart-lung transplant recipient in the COVID era: challenging patient in challenging times!

BJ. Bhaktavatsalam, S. Galitzine, J. Day, P. Hambly, J. Ferguson

Oxford University Hospitals NHS Foundation Trust, UK

Background:

Surgery in immunosuppressed patients such as organ transplant recipients during the COVID-19 era poses additional challenges to both patients and healthcare workers.

Case report:

A 64-year-old retired psychologist with previous heart-lung transplant for Eisenmenger syndrome required expedited intramedullary femoral nailing to prevent worsening of atypical 'hairline' femur fracture, due to long term bisphosphonate therapy. Following careful preoperative discussion with the surgeon and anaesthetist, the operation was performed under combined spinal epidural anaesthesia (CSE) with sedation and audio-visual distraction. Unfortunately, a second urgent operation was necessary due to postoperative periprosthetic fracture. Preoperative evaluation revealed stable cardio-respiratory function but extreme anxiety due to fear of contracting COVID-19 in the hospital, isolation from the family and pain control issues. After preoperative psychological counselling, a second intramedullary femoral nailing was performed under CSE (3 ml of 0.5% plain bupivacaine and 200 mcg of morphine) and deep sedation with propofol. With invasive monitoring, hemodynamic stability was maintained using vasopressors and judicious intravenous fluids. Postoperatively, the patient was monitored in high dependency unit and pain was managed by acute pain service team with epidural infusion and systemic opioids. Further psychological support was provided until patient was discharged.

Discussion:

Regional anaesthesia is the preferred choice over general anaesthesia in COVID-19 pandemic. This is due to avoidance of aerosol generating procedures, reduction in resource and financial costs of personal protective equipment, improved postoperative analgesia and earlier discharge [1]. However, in heart-lung transplant patients, the denervated heart is preload dependent and lacks the ability to respond to hypotension associated with neuraxial blockade. Meticulous fluid balance and direct acting sympathomimetics are essential to maintain hemodynamic stability [2]. Perioperative care should also focus on the impact of COVID-19 on mental health of such vulnerable patients who should be offered psychosocial support [3].

Learning points:

- A good understanding of changes in physiology, appropriate selection of anaesthetic technique and multidisciplinary team approach are essential for optimal perioperative care of heart-lung transplant recipients.
- The implications of COVID-19 for psychological health in immunosuppressed patients should be given special attention.

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Revisiting standardised consent documentation for orthopaedic central neuraxial blocks (CNBs): a quality improvement project (QIP)

BJ. Bhaktavatsalam, K. Wilson, S. Thirunagari, J. Matthews, S. Galitzine

Nuffield Orthopaedic Centre, Oxford University Hospitals NHS Foundation Trust, UK.

Consistent, clear and comprehensive documentation of patients' informed consent is an ethical and legal requirement. As per AAGBI guidelines, patients should be adequately explained the procedure, its benefits, alternatives, side effects and potential complications [1]. However, documentation is highly variable and lacks standardisation. In our hospital, compact standardised sticking labels attached to the anaesthetic chart ("stickers") and prompting CNB consent documentation were introduced 10 years ago and showed significant documentation improvement wherever they were used [2]. Development of guidelines and shortage of old stickers necessitated revision of both the format and content of the stickers. This QIP aimed to evaluate and improve the existing CNB consent documentation, at the same time forming the basis for forthcoming electronic anaesthetic records in our centre.

Methods: An initial audit assessed the quality of consent documentation in 50 consecutive anaesthetic charts of patients who received CNBs. Following this, a core group of 16 anaesthetists frequently performing CNBs in our centre were surveyed, assessing their opinions on the importance of documenting various consent elements. A revised sticker was then introduced, taking into account professional preferences in our institution and national guidelines for CNB consent documentation. A loop-closing audit of a further 52 anaesthetic charts was performed after 6 months, analysing the impact of the revised sticker.

Results: Additions to the revised sticker allowed documenting the alternatives to CNB, postoperative pain plan, giving the patient an information leaflet and patient's consent for the procedure. Certain elements recommended in the RCOA patient information leaflet [3], e.g. itching, urinary retention, pain on injection, were not included due to lack of space. The new labels have dramatically improved documentation for those elements of the consent which were reminded by the sticker, even if the anaesthetists did not feel that documenting them was "always important" (Table).

Standards discussed and documented	Percentage of 50 charts displaying information (%) <i>Initial audit (April 2019)</i>	Percentage of 52 charts displaying information (%) <i>Re-audit (November 2019)</i>	Percentage of anaesthetists who agree: "always important" to document (%)
Procedure – what to expect	24	100	50
Benefits	4	67	53
Alternatives	24	67	53
Failure	42	100	81
Motor block	26	100	56
Nerve damage	50	100	81
Headache	42	33	69
Urinary retention	12	0	44
Itching (if using opioids)	2	33	27
Low blood pressure	4	100	40
Block wear off / post-op pain	10	100	40
Patient consents	2	100	60
All questions answered	0	100	38
Leaflet given	0	0	20

Conclusion: Medical record keeping is an essential part of modern-day medicine. Revised CNB consent stickers effectively improved documentation quality. The future electronic version of the

stickers will allow more comprehensive documentation and avoid problems with paper stickers supply shortage.

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