

BSOA NEWSLETTER

Welcome to the December edition of the BSOA newsletter



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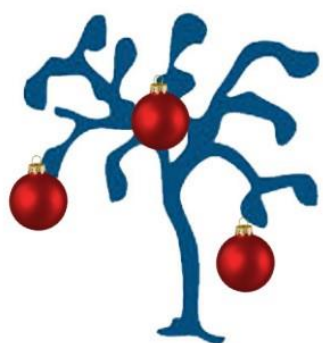
Season's greetings.
Wishing you much happiness
and prosperity in the year ahead!

— ” —

Dr EJ Da Silva
President of the BSOA



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British Society of Orthopaedic Anaesthetists



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Dear Members,

"Christmas is not a time nor a season, but a state of mind. To cherish peace and goodwill, to be plenteous in mercy, is to have the real spirit of Christmas."

Calvin Coolidge

Merry Christmas to all. Thank you for ensuring an excellent annual meeting last month. I am especially grateful to the 2023 London team led by Dr Jan Chernovsky and Dr Ramesh Vijayaraghavan of the Royal National in Stanmore who executed a perfect amalgamation of education and industry. This resulted in newfound camaraderie (post-Covid) and delegate interaction. The workshops were exceptionally marshalled by Dr Mruthu Huglar (Warrington) with excellent reviews. The quality of the submitted abstracts was of a very high standard. The winner's abstracts have been included here.

The links we have been developing with other anaesthetic societies are coming to fruition. This is evident with the presence of high-quality speakers, co-authored papers, and newer committee members with a wider interlinking practice base. All these changes are geared by design, aimed at improving the access to advances and width of knowledge. Thereby, reducing the silo effects of training we all undoubtedly experience in our daily work lives and interactions. We hope for this to be reflected in future meetings and a change in the approach of the newsletter.

Ramesh (current treasurer) and I will come to the end of our terms in office at the end of 2024. During our annual general meeting 2023, *Dr Tim Moll (Sheffield)* was elected to the treasurer's post, *Professor Anil Hormis (Rotherham)* was elected to the president's post which they will both commence immediately after the annual scientific meeting in November 2024. Committee members joining include; *Dr Robbie Erskine (Derby)*, *Dr Sid Narendra (Birmingham)*, *Dr Vassilis Athanassoglou (Oxford)*.

We are back to 2 trainee reps; Dr Nilesh Mohan (Birmingham) & Dr Huy Quang Nguyen (Oxford).

I am extremely grateful to Dr Vanisha Patel, our outgoing trainee rep, for all her work in the trainee role over the Covid period. The committee and I congratulate her on her consultant job at the Royal Worcester hospital. We congratulate Dr Svetlana Galitzine who was the well-deserved recipient of the 2023 President's medal.

Over the coming 3 years, our annual meetings are planned in Birmingham (2024), Sheffield (2025) and an international venue to be decided (2026).

The committee and I look forward to seeing you at future meetings as we maintain quality and standards whilst also looking to widen our workshop topics to include radiology and one lung ventilation techniques as standard teaching workshops.

Very best wishes

Dr EJ da Silva
President of the BSOA



Trainee Article Column

Knee Arthroplasty: An Anaesthetic Approach

Written by Neelesh Mohan, ST6 in Anaesthesia, Birmingham School of Anaesthesia

Introduction

Knee arthroplasty dates to the 1860s when the first documented knee replacement was performed. From the iron hinge joint used by the German surgeon Themistocles Gluck, developments in the apparatus and materials allowed for novel replacements to be trialed, moving us towards the 1960s when the first ever total knee replacement was performed. There has since been progress in the range of surgical techniques, such as patella-femoral replacements, ligament sparing or sacrificing techniques, bicompartamental to uni-compartmental replacements and most recently, resurfacing techniques. Furthermore, technology has evolved, as robot-assisted knee replacements become more common¹.

But how has anaesthesia dealt with this? To find the perfect balance between surgical anaesthesia, post-operative analgesia, physiotherapy and rehabilitation, anaesthetic techniques have evolved. This is even more important given that within the United Kingdom, there are over 100,000 TKR operations a year², and as of March 2023 there is an overall backlog of 800,000 people waiting for trauma and orthopaedic operations³. This places orthopaedic anaesthetists in a responsible position, with the anaesthetic techniques used being able to influence, enhance and expedite the patients' perioperative journey.

Relevant Anatomy and Innervation

It is important to understand the anatomy and innervation of the knee joint itself, as well as the surrounding tissue that will be disrupted during surgery. Figure 1⁴ shows the anatomy of the joint and Figure 2⁵ shows the innervation of the joint and capsule.

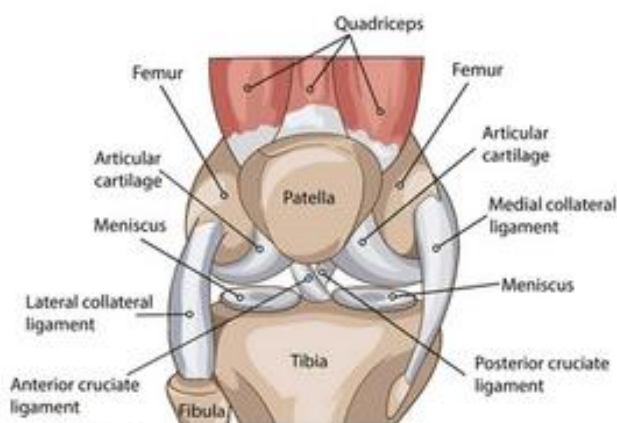


Figure 1



Figure 2

the patella tendon and the anterior tibial tuberosity. The patella is then laterally subluxed exposing the joint, arthrotomies are performed and implants are sited.⁶

Cutaneous Innervation

The cutaneous innervation of the knee is by branches of the femoral nerve, obturator nerve and the sciatic nerve.

Anteriorly, predominantly innervated by branches of the femoral nerve - superiorly by the anterior cutaneous branch of the femoral nerve, with more medial cover from the saphenous nerve.

Posteriorly, innervation comes from branches of the sciatic nerve, such as the posterior femoral cutaneous nerve.

Deep Innervation

Anterior innervation to the knee capsule and joint comes from the nerve to the vastus medialis, intermedius and lateralis, all branches of femoral nerve. There is also innervation from the genicular nerves, which form a complex surrounding the knee joint. The origin of these nerves shows interpersonal variation and can be combination of the femoral and sciatic nerve. These can be further split in to the superolateral, superomedial, inferolateral and inferomedial genicular nerves.

The posterior aspect of the joint and knee capsule is innervated by branches of the tibial and common peroneal nerve, both branches of the sciatic nerve, in addition to the obturator nerve.

What makes the perfect anaesthetic technique for knee arthroplasty?

The ideal anaesthetic technique for knee arthroplasty has reflected the priorities for recovery. The importance now given to early physiotherapy and mobilisation for recovery and joint function has introduced additional challenges, necessitating a balance between surgical anaesthesia intra-operatively, analgesia post-operatively and preservation of motor function. Compounding this, the ideal anaesthetic technique would avoid systemic side effects that are associated with certain analgesics and also be resource and cost effective.

Everybody likes to have options – what anaesthetic options are there?

As anaesthesia for arthroplasty has advanced, there has been an improvement in patient outcomes such as length of stay (LOS), overall cost, complication rate, perioperative pain, opioid side effects, and overall patient satisfaction⁷. Historically, when looking at the primary anaesthetic, this would pit general anaesthesia +/- systemic analgesia against neuraxial anaesthesia. Studies have led to conflicting conclusions regarding which primary anaesthetic is better, comparing risk of cardiovascular complications, venous thromboembolism risk, intraoperative bleeding and hospital stay.^{8,9} However, a large cohort study found that neuraxial anaesthesia improved outcomes that predicted readiness for

discharge, such as less pain, less opioids and lower incidence of post operative nausea and vomiting.¹⁰

The neuraxial technique of choice was historically an epidural infusion continuing up to 3 days post operatively.¹¹ Although improving post operative pain scores for the first 4-6 hours when compared to systemic analgesia, this was not found to continue up to the 18 hours.¹² Given the loss of motor function associated with an epidural, the contralateral leg also being affected, the need for urinary catheterisation and the complications that arise when introducing post operative chemical VTE prophylaxis, there has now been a shift towards spinal anaesthesia as a primary neuraxial technique. An alternative unilateral approach is a lumbar plexus block. This similarly has fallen out of favour due to it being a deep block and placing the patient at increased risk of a retroperitoneal haematoma when chemical VTE prophylaxis is started.

How can we do better?

Moving on to supplementation of the primary anaesthetic with peripheral nerve blocks. Although the obturator nerve is credited for contributing to the innervation of the knee, the majority of anterior innervation comes from the femoral nerve, making it an obvious target to block. It has been found that pain scores are markedly lower in those who have had a femoral nerve block when compared against those who have not. Also, opiate consumption occurs later and to a much lesser degree with patients who have had femoral nerve blocks.¹³ Quadricep weakness is to be expected following a femoral nerve block, and continuous femoral nerve infusions have been associated with increased risk of falls in patients post operatively. This risk and delay in mobilisation and physiotherapy can be offset by the fact that supine physiotherapy is more comfortable for the patient as there is a better degree of flexion of the knee compared to those who have not had the block or infusion.¹⁴

Alternative approaches have been established to maintain the sensory anaesthesia of the anterior aspect of the knee but avoid the loss of quadricep strength. One is via the adductor canal block, which when performed at the correct level aims to block the saphenous nerve whilst avoiding blocking the nerve to vastus medialis. This has been shown to be non-inferior to a femoral nerve block in terms of pain relief and prevention of opioid consumption, whilst maintaining quadricep strength.¹⁵ A higher approach, targeting the femoral triangle has also been described, which intentionally targets few of the motor nerves to the vastus muscles.

More recently, there has been targeted infiltration of local anaesthetic around the anterior cutaneous branch of the femoral nerve, which can be identified on the surface of the sartorius muscle in the mid-thigh. Furthermore, targeted local anaesthetic blockade of the four genicular nerves in addition to a spinal, IPACK and adductor canal blocks, has been shown to reduce opiate consumption post operatively compared to those who have not.¹⁶

The back of the knee is important too!

Having considered multiple options for the anterior aspect of the knee, these would have minimal benefit for pain from the posterior aspect of the knee. The innervation of the posterior aspect of the knee is predominantly from the sciatic nerve, with contribution from the obturator. A meta-analysis has shown that there is clear benefit in sciatic nerve block in

addition to a femoral nerve block vs a femoral nerve block alone, with patients receiving the combination having lower pain scores at rest and at movement at least for the 8 hours post-operatively. There was also reduced opioid consumption in this group¹⁷. The effect remains if the block is performed proximally or distally¹⁸. Similarly, to the femoral nerve block, there remains a concern over post-operative mobilisation and risk of falls following a sciatic nerve block. There is also concern surrounding the risk of masking a common tibial nerve stretch injury that may occur following a TKR.¹⁹

A newly developed block, In-between the Popliteal Artery and the Capsule of the Knee (IPACK), has become more and more popular as an alternative to the sciatic nerve block. This provides motor sparing analgesia to the posterior aspect of the knee, contributing to the genicular nerve blockade should a genicular nerve block not be performed. A trial has shown that the post-operative opiate consumption was reduced in a femoral nerve and IPACK block cohort compared to the group with no IPACK block. It also found that physical therapy performance was better in an adductor canal plus IPACK block group compared to a femoral nerve block group, with or without IPACK.²⁰

It's a team effort

Having explored the range of anaesthetic techniques available for anaesthesia and analgesia for a total knee arthroplasty, it is important to mention the role of the surgeon and periarticular infiltration of local anaesthetic. High volume infiltration of local anaesthetic with adrenaline not only provides analgesia but will also improve surgical conditions, decreasing the length of surgery and potentially the trauma caused. A study showing patients who had local anaesthetic infiltration along with an adductor canal block, compared to those who had either one or the other, had a reduction in post-operative opiate consumption.²¹

What and where now?

The growing burden of waiting lists of patients awaiting knee arthroplasty will need to be addressed, and techniques allowing many of these cases to occur as day case procedures will be paramount to achieve this.

This will involve refinement of the techniques already being used, with optimisation of drug concentrations and dosages, but also innovation of techniques that may be employed in the pre-operative stage.

Pre-operative sensory denervation has been explored but unfortunately not shown favourable results²². Introduction of novel local anaesthetic mixes, such as liposomal bupivacaine, extending their analgesic benefits led was promising, however did not demonstrate any advantage over plain bupivacaine hydrochloride²³.

Advice from the American Society of Regional Anaesthesia and Pain Medicine has been published regarding implementation of an outpatient adductor canal catheter programme for patients undergoing total knee replacements²⁴. Given the increase in previously hospital-based services now being managed in the community, such as OPAT therapy, inclusion of such services may help the push towards a faster reduction in waiting lists, and possibly the burden of post-operative inpatient stays following uncomplicated primary total

knee arthroplasty. Whichever direction the field moves in, the effective management of early post-operative pain following total knee arthroplasty remains is a key a factor in helping patients return to their pre-morbid function and return to work, converting a potential cost for the National Health Service into a contributor.

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Accountant Advice Column

Electric Cars & Xmas Gifts

Electric Cars – Company Owned or Privately Owned & Company Funded (Via Dividends)

In order to make the two options comparable, below we'll calculate the profits the company will need to make in order to meet the expenditure of both options.

Figures are illustrative and therefore, not all factors have been taken into account and some assumptions have been made.

The following areas we'll deal with separately in our calculations - Purchase of the car; Annual running costs; BIK (Benefit in Kind) tax costs and disposal proceeds.

1. The assumed cost of the car is £32,000.
2. Running cost assumed.
3. Cost calculated for 4 years of ownership.
4. Disposal value assumed at £10,000.
5. 2023/24 tax tables used.

Purchase Cost:

Option 1; Company owns the car

The company may claim 100% FYA (First Year Allowance) on buying the car, giving it tax relief of £8,000 ($£32,000 \times 25\%$) in the year of purchase. Therefore the net cost to the company of buying the car would be £24,000.

Option 2; Privately purchased with company dividends

A dividend of £48,302 from the company is required to cover the purchase privately. Taking into account corporation tax on the profits used to pay the dividend, the total cost to the company would be £64,403 (see working).

	£
Profits of company	64,403
Less corporation tax at 25%	(16,101)
Profits available to pay as dividend	48,302
Less income tax at 33.75%	(16,302)
After-tax dividend equal to purchase price	32,000

Running Cost:

Option 1

The running costs net of tax relief (on Corporation Tax) are £750 ($£1,000 \times (100\% - 25\%)$) for each year. That is £3,000 in total.

	£
Profits of company	2,012
Less corporation tax at average rate 25%	(503)
Profits available to pay as dividend	1,509
Less income tax at 33.75%	(509)
After-tax dividend equal to running costs	1,000

Option 2

To cover £1,000 of costs per year you would require an additional dividend of £1,509 from the company. Taking into account corporation tax on the

profits used to pay the dividend, the total cost to the company would be £2,012 for each of the four years (see working). That is £8,048 in total.

BIK Costs (Option 1 Only):

Using the percentage applying for 2023-24, the BIK will be £640 (£32,000 x 2%). This gives rise to a Class 1A NICs liability of £88 (£640 at 13.8%) for the company and an increased income tax liability of £288 (income tax on employment income at 20% plus additional income tax (33.75% - 8.75%) on dividends now in higher rate band).

Taking into account corporation tax and the additional dividend payable to cover your tax bill, the BIK costs under Option 1 are £668 for each of the four years (see working). That is £2,672 in total.

	£
Profits of company	668
Less corporation tax at average rate 25%	(88)
Profits available to pay as dividend	580
Less income tax at 33.75%	(145)
After-tax dividend equal to running costs	435
Less income tax at 33.75%	(147)
After-tax dividend equal to BIK costs	288

Disposal Proceeds:

Option 1

The disposal value of £10,000 will be deducted from the balance on the general pool, restricting the company's capital allowances claims going forward and so increasing taxable profits by £2,500 (£10,000 at 25%). Therefore, the net benefit to the company is £7,500.

Option 2

You will receive funds of £10,000, reducing her need to take dividends from the company. The benefit to the company is £20,125 (see working).

	£
Profits of company	20,125
Less corporation tax at 25%	(5,031)
Profits available to pay as dividend	15,094
Less income tax at 33.75%	(5,094)
After-tax dividend equal to proceeds	10,000

Conclusion:

Based on illustrative figures, you would be better off by approximately £30,000 under Option 1 by purchasing through the company (see summary).

	Option 1	Option 2
	£	£
Purchase costs	24,000	64,403
Running costs	3,000	8,048
BIK costs	2,672	-
Disposal proceeds	(7,500)	(20,125)
Total	22,172	52,326
Saving under Option 1	30,154	

For the most part, the saving arises because the tax paid on dividends under Option 2 significantly exceeds the tax paid on the BIK under Option 1. Put simply, the favourable BIK rules for electric cars makes Option 1 the most tax-efficient option.

However, it should be noted that under Option 1, more profits are retained in the company and so additional tax may be payable as and when those profits are extracted.

Business Entertainment & Employee Christmas Gifts/Parties

In general, the cost of business entertainment, e.g. treating a client to lunch or tickets to a football match, is not deductible for tax purposes. However, there is an exception for staff entertainment. The cost of entertaining staff will be fully deductible for corporation tax purposes, as long as it is not merely a small part of the cost of entertaining non-staff. For example, if a company holds a lavish ball for 100 clients, and invites a few key staff along, the staff entertainment is merely incidental to the excluded business entertainment and the cost won't generally be allowable. The crux is to ask 'What is the main motive for incurring the expenditure?'. As long as the (honest) answer is to entertain staff, there is no problem.

There is no upper limit to what a company can claim for staff entertainment. This sometimes raises eyebrows, as some people will swear that they 'know' there is a £150 per head limit. But of course, this applies for income tax purposes from the perspective of the individual employees.

The £150 limit

Where people, including business owners, sometimes mix things up is the £150 exemption for benefit-in-kind purposes. It would be pretty galling for employees to be invited out for a Christmas party with their employer, only to be told that they owe tax on it later on. To avoid this, there is an exemption as long as the cost per head does not exceed £150 (including VAT) each year. But again, there can be confusion as to how this operates.

Firstly, it is important to note that it is not an allowance. A company can't spend £160 per head and deduct £150 from the employees' taxable benefit in kind. If the per-head cost exceeds £150, it's all subject to income tax and Class 1A NIC.

Secondly, many business owners are aware that the exemption can be spread across more than one event during the year. However, it is crucial to understand that these have to be annual events, e.g. Christmas parties, a summer ball, etc. It can't be used for things like occasional drinks, or lunches. It is also sometimes incorrectly believed that the expenditure toward the limit is added on a cumulative basis. It isn't, and the exemption can be used against whichever qualifying event suits best. For example, if a summer ball is held at a cost of £80ph, and a Christmas party is held at £125ph, the exemption can be claimed against the later event.

Thirdly, the event(s) in question must be open to all staff. It can't just be for directors, managers, etc. However, it is permissible to restrict attendees by location, for example where there are multiple branches of a business, it is fine to hold separate branch-specific functions.

There can be a problem where a company is required to pay upfront. The £150ph limit applies to attendees, not invitees. So, if a number of staff are taken ill or don't attend for any reason, the average cost can increase.

Note that employees can bring guests and they will be included in the head count when checking if the £150ph has been exceeded.

Seasonal Gifts

Many companies will also make gifts to employees at Christmas time. In practice, there is no issue claiming a deduction for Corporation tax purposes, but the income tax and VAT consequences must be considered.

If the value of the gift is no more than £50 (or £50ph on average if it is provided to a group of employees), and it is not money or money's worth (e.g. a cash voucher), it will probably qualify as a trivial benefit, so the company won't need to report it, as long as it isn't provided for in the employment contract and isn't performance related. In short, it has to be a genuine non-cash gift.

Mobile Phones

Mobile phone: the employer contracts with the provider

An employer may provide an employee (or Director) with a single mobile phone (both handset and service contract) for business and/or private use with no tax or National Insurance Charge ("NIC") arising. The contract needs to be between the employer and the phone provider if the exemption is to apply. Unlike a landline or internet service contract, the tax and NICs exemption will apply even when there is unlimited personal use or no business use at all.

Mobile phone: the employee contracts with the provider

Whilst an employer can provide a mobile phone as a tax and NICs-free benefit in kind even if there is no business use of it at all, the employee cannot claim tax-relief for providing the same mobile phone personally instead. Nor can the employer reimburse the employee's full contract costs free of tax and NICs if the employee is permitted to use that mobile for personal calls. Arguments, such as the need for the employee to keep a particular phone number or that the employee is able to obtain a cheaper contract than the employer, will carry no weight in this context.

If the employee can demonstrate the exact cost incurred on business calls made from their personal mobile, then a claim for tax (but not NICs) relief for the calls, but not the line rental, can be made on the grounds that the cost was incurred wholly, exclusively and necessarily in the performance of the duties of the employment. An all-inclusive monthly package would prevent such a claim.

Employee has a separate (personal) mobile phone for work

If the employee can satisfy HMRC that a mobile phone which is personally provided and paid for is used wholly, exclusively and necessarily in the performance of the duties of their

employment, the employee will be able to claim tax relief for the cost. There will be no NICs relief.

If the employee also has another personal contract, and can explain why their employer is not prepared to provide a mobile phone when one is needed (and the employer confirms this if HMRC approaches them, as they sometimes do) will help demonstrate that the conditions for tax relief are met. Without there being another personal phone, HMRC will argue that the 'wholly and exclusively' test is not met, because the employee can receive personal calls. It does not matter that there is no marginal cost for this or that no such calls are in fact received. Now that itemised bills are unusual, it would also be difficult for the employee to show what the cost of business use was.

Finally, we wish everyone from AF Tax Solutions a Merry Christmas and a happy and prosperous New Year.

For further information or for a free initial consultation to discuss your tax affairs please contact Andrew Fenton (Director at AF Tax Solutions Ltd) on 01323 845083 or email andrew@aftax.co.uk.

Andrew is a Chartered Tax Adviser (and a former Inspector of Taxes with HMRC) and has many years of experience in dealing with the tax affairs of medical professionals.



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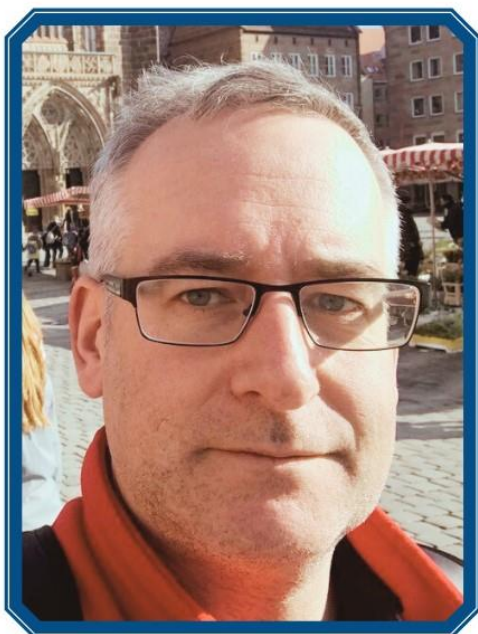
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Committee Changes Many Congratulations...



**Anil Hormis
President-Elect**



**Tim Moll
Treasurer-Elect**



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Case report - Awake anterior lumbar interbody fusion spine surgery

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We report a case of a 43 year old male patient presenting for elective single-level L5- S1 spine interbody fusion via anterior approach. The patient had a preference for avoiding general anaesthesia and had undergone lumbar discectomy previously under a spinal anaesthetic.

Case description

In this case, continuous spinal anaesthesia was performed via a 21 gauge pencil-point needle and a bolus of 4ml of 0.25% plain bupivacaine and 200mcg morphine was injected. A 25 gauge catheter was then threaded 3cm into the subarachnoid space.

The patient was moved into a right lateral position. The initial spinal bolus gave blockade up to T11 dermatomes bilaterally. A further bolus dose of 20mg of chloroprocaine was given to get the dermatomal level up to T6. Surgery commenced approximately one hour after the spinal injection. Two further boluses of 20mg each of chloroprocaine at the two and three hour mark were given. The total operation time was three hours. The patient was sedated with intermittent boluses of dexmedetomidine (40mcg bolus and three further doses of 10mcg every hour). The patient was able to bend his knees 30 minutes after the end of the operation. Full return of motor function was achieved two hours after return to the ward and the patient mobilised the same evening as the operation. He was discharged on the morning of the following day. Postoperatively, pain was managed with regular paracetamol, celecoxib and nefopam and he did not require any opioids.

Discussion

Awake spinal surgery in the prone position for lumbar surgery has been well described, with several advantages beyond avoidance of a general anaesthetic. Positioning related complications such as pressure sores, nerve injury and vision loss can be avoided, on top of potentially reducing blood loss. However, the surgical procedures are limited by the duration of a single shot spinal and the discomfort likely to result from positioning. Anterior lateral interbody fusion (X ALIF) is a lateral minimally invasive approach to the anterior lumbar spine. Although minimally invasive, with incisions below the umbilicus,

positioning with x-rays can take up to one hour, which uses up 'spinal time'. Therefore, rather than do a single-shot large dose spinal, a catheter technique with top-ups using short-acting local anaesthetic provided the ability to make the spinal last, while also allowing for faster wear off, resulting in early mobilisation.

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Regional anaesthesia in hip fracture surgery: Our experience developing local educational initiatives

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Education is regarded as being 'the first and most important tool in the safe provision of anaesthesia' [1]. A recent audit evaluating trust performance of intra-operative peripheral nerve blocks in the context of hip fracture surgery revealed several areas for improvement including: rates of block performance and knowledge deficits regarding procedural contraindications [2]. Reflecting on the results, we designed and implemented a departmental educational package with the aim of improving knowledge and performance of: femoral nerve blocks; supra and infra-inguinal approaches to the fascia iliaca block.

Methods

Pre-existing barriers to block performance were first identified, including: lack of knowledge/confidence and unfamiliarity with equipment/logistics. Educational interventions were subsequently designed to target new core trainees (CTs) joining the trust in August 2023, and 'block-ambivalent' practitioners. We designed and delivered: easily accessible posters with concise relevant information facilitating block performance; trust-specific videos on block performance and equipment access [3,4]; and face-to-face training sessions involving the use of a needling simulator. Information was disseminated widely via emails; trainee WhatsApp groups and during departmental induction. Learner feedback was collected via a survey.

Results

We received positive feedback, especially with CTs reporting increased confidence ($p < 0.05$ for all three blocks). Informal departmental feedback also indicated a desire for further teaching material in the form of videos. Despite its superior analgesia, CTs were least familiar with the suprainguinal fascia iliaca block; it was associated with the greatest improvement in confidence following our interventions. A significant barrier to our educational programme was the cancellation of departmentwide teaching days due to industrial action. To address this, we delivered multiple teaching sessions on different days, and our use of digital technology such as YouTube videos and online

posters enabled remote self-directed learning/clinical reference, facilitating the accessibility and sustainability of our interventions. A subsequent audit is underway to evaluate block performance rates and efficacy of our interventions.

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Anaemia and fractured neck of femur: promoting early recognition and treatment in the perioperative period

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Perioperative management of frailty fractures remains a significant challenge for the multidisciplinary team. Key aims of include remobilisation by postop day one and recommencement of activities of daily living within five days. The National Hip Fracture Database and local audits have identified anaemia as a major factor contributing to failure and delays meeting those targets [1]. Furthermore, restrictive transfusion thresholds of 70-80 g/l have been shown to increase the risk of adverse events in frailty fracture patients compared to more liberal targets [2]. This quality improvement project aimed to improve recognition and prompt treatment of anaemia in patients presenting with fractured neck of femur. The expected outcome was that all patients should have haemoglobin (Hb) measured in theatre or recovery, and if appropriate, be transfused to a target of 90 g/l in line with national guidance [2].

Methods

Using a QI methodology, baseline data points (operation, ASA, mode of anaesthesia, Hb check in theatre/recovery) were collected retrospectively from patient records. A minimum of 10 data sets per collection window, each collected over seven days. This informed planning and design phases, for which we consulted stakeholders (Recovery Nurses, Surgeons, Anaesthetists, Orthogeriatricians, Physios, Haematology) to develop each PDSA cycle (five cycles in total). The same retrospective data points were collected from patient records after each cycle. Initial PDSA cycles focused on raising awareness through posters and then education delivered to Anaesthetists, Nurses and Surgeons in an opportunistic manner (e.g. morning brief). This campaign aimed to sustain change by presentation of up-to-date data at regular intervals at local clinical governance and hip-fracture meetings. Later PDSA cycles (3, 4) involved Recovery Nurses who prompted the Anaesthetists at handover regarding Hb check, as well as formalising discussions of blood loss at the end of theatre cases using the WHO checklist 'sign out'. Finally in cycle five we included Hb check in the recovery discharge checklist.

Results

Baseline data showed 10% of patients had Hb checked perioperatively, improving to 70% in 2nd cycle. 41.7% had Hb checked in the 3rd cycle, 75% in the 4th cycle, and 58.3% in the 5th cycle. Each cycle consisting of at least 12 patients over a 7-day-period. Of these patients, most were ASA3 (47.2%), and the most common procedure was hemiarthroplasty (44.4%). There was no correlation between ASA grade or mode of anaesthesia with Hb monitoring. Hb was most commonly checked following hemiarthroplasty or intramedullary nail surgery.

Conclusions

Developing persistent demonstrable change within a large department is notoriously difficult. A consistent effort is required and involvement of all stakeholders including departmental leadership is essential until a change is formed in day-to-day practice. This project utilised a QI methodology over a period of five PDSA cycles, including a combination of departmental and hospital-wide approaches. Poster campaigns, education delivered both ad-hoc in small groups and repeated local presentations at departmental and inter-departmental meetings, utilising WHO sign out and recovery checklists resulted in improvements which have persisted albeit with variation in efficacy at various points.

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