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Perioperative care in hip and knee arthroplasty—a survey of New Zealand orthopaedic surgeons

Marinus DJ Stowers, Andrew G Hill, Brendan Coleman, Jacob T Munro

BACKGROUND: Evidence for Enhanced Recovery After Surgery (ERAS) protocols continues to grow and is considered standard of care by many. ERAS coordinates evidence-based perioperative care interventions to hasten recovery. Pioneered by Prof Henrik Kehlet in colorectal surgery, ERAS principles have been adopted in many specialties, including bariatric, gastric, vascular, gynaecological and orthopaedic surgery.¹

Specific to elective arthroplasty ERAS interventions include preoperative education, spinal anaesthesia/analgesia, local infiltrative analgesia, avoidance of surgical drains, tranexamic acid (TXA), early removal of catheters and early mobilisation.²

This survey aimed to characterise perioperative management among New Zealand orthopaedic surgeons across the private and public sectors, and compare this to the current literature.

METHODS: An online survey (www.surveymonkey.com) was sent to New Zealand hip and knee arthroplasty surgeons. It was composed of 10 multiple choice questions, including: surgeon's place of practice and experience (Q1 and Q2); routine perioperative surgical interventions used in hip and knee arthroplasty (THA and TKA, respectively) (Q3–9); and potential perceived barriers for ERAS implementation at their centres (Q10). The survey was designed by the authors and scrutinised for content and face validity by three arthroplasty surgeons (BC, JM and MD). The option of adding comments as free text after each question was made available.

After obtaining ethics approval from the University of Auckland Ethics Committee,

the link to the survey was emailed to all current members of the New Zealand Orthopaedic Association (NZOA) for 2012–13, with an endorsement letter from the NZOA. The link to the questionnaire was sent on three separate occasions. The first was sent on 18 October, 2013, and then again one month and two months later. Patterns of perioperative care were characterised by level of experience (ie, fellow, consultant <5 years, consultant 5–10 years, consultant >10 years).

According to registry data for the period 2012–13, there were 198 surgeons who performed 10 or more THAs or TKAs.

RESULTS: Fifty-three (26.8%) surgeons responded to the online survey. One responder answered Q1 and Q2 only and therefore was excluded. Fifty-two surveys were therefore included in the final analysis.

Surgical approach

The majority of participants (62.5%) use a posterior approach to performing THA. In 19.6% and 14.3% lateral and antero-lateral approaches were used. Only two surgeons used an anterior approach.

Among responders performing TKA, the surgical approach was unanimous in favour of the medial parapatellar approach (94.2%).

Tranexamic acid

Routine use of TXA in THA and TKA was 32.7% and 36.5% respectively. Nineteen percent of participants left this decision to the anaesthetist to decide. Despite the abundant evidence supporting the efficacy and safety of TXA in elective arthroplasty,^{5,6} it is clear that TXA is not standard practice for many of our arthroplasty surgeons.

Surgical drains

Surgical drains were more commonly used for TKA (54.9%) than THA (39.2%). Twenty-four percent of surgeons were selective in their use of surgical drains. No use of surgical drains was reported by 23.5% of participants. Current evidence suggests closed drainage systems confer no additional benefit over no drain, with equivalent rates of infection.⁷

Mobilisation

All surgeons encouraged mobilisation by the first postoperative day, with 37.3% instructing patients to mobilise on the day of surgery. Four surgeons indicated that achieving this milestone was dependent on persisting regional and neuroaxial blockade.

Anaesthesia

There was a preference for spinal anaesthesia (SA) in combination with either regional blockade \pm local anaesthesia (LA) for patients undergoing THA (n=34, 72.9%). A quarter of responding surgeons preferred to use general anaesthesia (GA) in combination with either SA \pm regional blockade \pm LA. Anaesthesia preference for TKA was similar to THA. The introduction of ERAS protocols have influenced choice of anaesthesia with centres encouraging same day mobilisation.^{8,9} Such protocols may preclude the use of regional anaesthesia, as this may delay mobilisation via persistent motor blockade. Thus, local infiltrative anaesthetic is a more attractive means of providing adequate postoperative analgesia.

Indwelling catheter removal

When deciding to remove IDCs, removal is instructed for the first postoperative day in 34.0% and 31.9% of responders for THA and TKA, respectively. Ten (21.3%) surgeons indicated that the decision to insert an IDC was patient and anaesthesia dependent.

DVT pharmacological agent

Following THA and TKA, aspirin was the preferred chemoprophylactic agent in 70.6% of responders; clexane was preferred by 19.6% of surgeons; and rivaroxiban was preferred by 15.7% of surgeons. One responder each

indicated that they used dabigatrin, or did not use any form of pharmacological prophylaxis. The choice of venous thromboembolic (VTE) chemoprophylaxis continues to perplex surgeons in this setting and the appropriate agent continues to be heavily debated.

Adopting ERAS

Of 51 responders, 13 (25.5%) stated that they already follow an ERAS approach. Forty-seven percent of responders indicated some form of barrier would be encountered when attempting to introduce an ERAS protocol for their arthroplasty units. The most common barrier likely to be encountered by surgeons was the lack of 'buy-in' from their colleagues (31.4%), followed by institutional barriers (25.5%). Kahokehr and colleagues state that "for successful implementation of ERAS the most vital ingredient is a surgeon willing to overcome traditional concepts of perioperative care".¹⁰

Conclusion

A nationwide survey was performed to describe several surgical practices among New Zealand arthroplasty surgeons and how these aligned or differed with the current literature and ERAS protocols. To the authors' knowledge, this is the first survey of perioperative care practices among arthroplasty surgeons. Although the response rate was low (26.8%), considerable variation in surgical practices among surgeons was identified and although many surgeons' practices aligned with the current literature, many did not. Based on these findings there is certainly scope to implement ERAS in arthroplasty units around the country, if they are not already established. The difficulty however, will be attaining sufficient 'buy-in' from key stakeholders and maintaining traction throughout this process. Implementing evidence-based care in a standardised manner can be challenging. Further research into addressing the potential barriers is required, including more robust studies on specific care interventions in ERAS for THA and TKA.

Competing interests: Nil**Acknowledgement:**

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