

# Regional anaesthesia update

**Dr David Choi**

**Specialist Anaesthetist, Counties Manukau**

We explore the relevant regional anaesthesia updates in the past few years, and discuss what I hope to be clinically relevant studies and updates. We will travel around the body from head to toe and give large-picture global updates. My aim is that this talk will have something interesting for everyone – from the block masters to those that don't utilise regional anaesthesia in their day-to-day practice.

Here are the following questions that we aim to answer during the update. Come along and join the discussion to find the latest answers to the following questions...

Upper limb:

- How common is rebound pain?<sup>1</sup>
- Who is at most risk of reporting rebound pain?<sup>2</sup>
- What is the satisfaction rate of patient's having blocks, and should you consider this for your next upper peripheral limb surgery?
- How long does dexmedetomidine additive actually "add" to the duration of the block? One day? Two days? And what time frame would you expect the rebound pain to occur?<sup>3</sup>
- What percentage of patients receiving an interscalene block require HFNP or other forms of respiratory support and what preoperative patient factors determine the highest risk? Should you proceed blocking with this patient without a HDU bed?<sup>4</sup>
- In patients that have a documented nerve injury, would you consider a peripheral nerve block? Or is the double-whammy injury a real thing?<sup>5</sup>

Hips and knees:

- What updates are there with the PENG (pericapsular nerve group block) and is there evidence to support their routine use?<sup>6</sup>
- GA vs Regional Anaesthesia: an age-old debate that has recently come to light again
  - We will explore a couple of gold-standard large meta-analysis as well as discussing the two studies that reignited the debate – REGAIN and RAGA trials.<sup>7</sup>
  - Do anaesthetists affect patient outcomes? and if so – by how much?<sup>8</sup>
  - What insights does the ANZ Hip Fracture database reveal?<sup>9</sup>
  - ICAROS group meta-analysis on regional vs general anaesthesia for hip arthroplasty and total knee arthroplasty (TKA) and what do they conclude?<sup>10,11</sup>

Neuraxial anaesthesia / regional anaesthesia for spines

- Does the use of ultrasound improve success when placing a lumbar or thoracic epidural?<sup>12</sup>
- Is there role for regional anaesthesia in spine surgery?
- What does the evolving literature reveal about erector spinae blocks in lumbar spine surgery?<sup>13</sup>

Knees and ankles:

- Are peripheral nerve blocks for ankle fracture surgery useful? And does it add anything to a spinal?<sup>14</sup>
- Where is the optimum placement of an adductor canal catheter (ACC) for TKA?<sup>15</sup>
- What is the best way to secure a catheter to minimise migration? What is the failure rate of ACCs?<sup>16</sup>
- Should we be considering ACC for our TKA patients?<sup>17</sup>

Truncal trauma

- What role does Acute Pain Service play in looking after patients with blunt force trauma of the chest?<sup>18</sup>
- Does their involvement change patient outcomes?
- What does the local data (Middlemore) show after the implementation of the COMBAT protocol for rib fractures?

Interesting but less used blocks...

- We will discuss the use and application of the clavipectoral fascial block for midshaft clavicle fracture surgery.
- What are the benefits of this block vs tried-and-true Interscalene block?<sup>19</sup>

Finally, adjuncts...

- We explore the latest network meta-analysis looking at how various additives for regional anaesthesia affect the mean duration of action.
- What additives are used around the world? What can you use to prolong your block successfully?<sup>20</sup>

I hope you can join me in this upcoming meeting to discuss, debate and answer some of these questions!

## Resources

1. Sunderland S, Yarnold CH, Head SJ, et al. Regional versus general anesthesia and the incidence of unplanned health care resource utilization for postoperative pain after wrist fracture surgery: Results from a retrospective quality improvement project. *Reg Anesth Pain Med.* 2016;41(1):22-27. doi:10.1097/AAP.0000000000000325
2. Barry GS, Bailey JG, Sardinha J, Brousseau P, Uppal V. Factors associated with rebound pain after peripheral nerve block for ambulatory surgery. *Br J Anaesth.* 2021;126(4):862-871. doi:10.1016/j.bja.2020.10.035
3. Aliste J, Layera S, Bravo D, et al. Randomized comparison between perineural dexamethasone and combined perineural dexamethasone-dexmedetomidine for ultrasound-guided infraclavicular block. *Reg Anesth Pain Med.* 2022;47(9):554-559. doi:10.1136/rapm-2022-103760
4. Xu L, Gessner D, Kou A, Kasimova K, Memtsoudis SG, Mariano ER. Rate of occurrence of respiratory complications in patients who undergo shoulder arthroplasty with a continuous interscalene brachial plexus block and associated risk factors. 2023:1-7. doi:10.1136/rapm-2022-104264
5. Yin J, Yin W, Kairis E, Thomas S, Montoya M, Orebaugh S. Neurologic outcomes with peripheral nerve blockade in distal upper extremity nerve trauma: A retrospective study. *Reg Anesth Pain Med.* 2022;48(3):141-143. doi:10.1136/rapm-2022-103734
6. Bravo D, Aliste J, Layera S, et al. Randomized clinical trial comparing pericapsular nerve group (PENG) block and periarticular local anesthetic infiltration for total hip arthroplasty. *Reg Anesth Pain Med.* 2023;0(0):rapm-2023-104332. doi:10.1136/rapm-2023-104332
7. Neuman MD, Feng R, Carson JL, et al. Spinal Anesthesia or General Anesthesia for Hip Surgery in Older Adults. *N Engl J Med.* 2021;385(22):2025-2035. doi:10.1056/nejmoa2113514
8. Papachristofi O, Sharples LD, Mackay JH, Nashef SAM, Fletcher SN, Klein AA. The contribution of the anaesthetist to risk-adjusted mortality after cardiac surgery. *Anaesthesia.* 2016;71(2):138-146. doi:10.1111/anae.13291
9. Lin DY, Woodman R, Oberai T, et al. Association of anesthesia and analgesia with long-term mortality after hip fracture surgery: an analysis of the Australian and New Zealand hip fracture registry. *Reg Anesth Pain Med.* 2022;48(1):14-21. doi:10.1136/rapm-2022-103550
10. Memtsoudis SG, Cozowicz C, Bekeris J, et al. Anaesthetic care of patients undergoing primary hip and knee arthroplasty: consensus recommendations from the International Consensus on Anaesthesia-Related Outcomes after Surgery group (ICAROS) based on a systematic review and meta-analysis. *Br J Anaesth.* 2019;123(3):269-287. doi:10.1016/j.bja.2019.05.042
11. Memtsoudis SG, Cozowicz C, Bekeris J, et al. Peripheral nerve block anesthesia/analgesia for patients undergoing primary hip and knee arthroplasty: recommendations from the International Consensus on Anesthesia-Related Outcomes after Surgery (ICAROS) group based on a systematic review and meta-analy. *Reg Anesth Pain Med.* 2021;46(11):971-985. doi:10.1136/rapm-2021-102750
12. Arzola C, Balki M, Gleicher Y, Malavade A, Friedman Z. Comparison of ultrasound-assistance versus traditional palpation method for placement of thoracic epidural catheters: A randomized controlled trial. *Reg Anesth Pain Med.* 2022;47(9):571-572. doi:10.1136/rapm-2021-103296
13. Avis G, Gricourt Y, Vialatte PB, et al. Analgesic efficacy of erector spinae plane blocks for lumbar spine surgery: a randomized double-blind controlled clinical trial. *Reg Anesth Pain Med.* 2022;47(10):610-616. doi:10.1136/rapm-2022-103737
14. Sort R, Brorson S, Gögenur I, et al. Peripheral nerve block anaesthesia and postoperative pain in acute ankle fracture surgery: the AnAnkle randomised trial. *Br J Anaesth.* 2021;126(4):881-888. doi:10.1016/j.bja.2020.12.037
15. Lee B, Park SJ, Park KK, Kim HJ, Lee YS, Choi YS. Optimal location for continuous catheter analgesia among the femoral triangle, proximal, or distal adductor canal after total knee arthroplasty: a randomized double-blind controlled trial. *Reg Anesth Pain Med.* 2022:353-358. doi:10.1136/rapm-2021-103284
16. Fujino T, Yoshida T, Kawagoe I, Hinotsume A, Hiratsuka T, Nakamoto T. Migration rate of proximal adductor canal block catheters placed parallel versus perpendicular to the nerve after total knee arthroplasty: a randomized controlled study. *Reg Anesth Pain Med.* 2023:1-5. doi:10.1136/rapm-2022-104303

17. Hussain N, Brull R, Zhou S, et al. Analgesic benefits of single-shot versus continuous adductor canal block for total knee arthroplasty: a systemic review and meta-analysis of randomized trials. *Reg Anesth Pain Med.* 2022;48(2):49-60. doi:10.1136/rapm-2022-103756
18. Sborov KD, Dennis BM, De Oliveira Filho GR, et al. Acute pain consult and management is associated with improved mortality in rib fracture patients. *Reg Anesth Pain Med.* 2022;47(10):643-648. doi:10.1136/rapm-2022-103527
19. Zhuo Q, Zheng Y, Hu Z, et al. Ultrasound-Guided Clavipectoral Fascial Plane Block With Intermediate Cervical Plexus Block for Midshaft Clavicular Surgery: A Prospective Randomized Controlled Trial. *Anesth Analg.* 2022;135(3):633-640. doi:10.1213/ANE.0000000000005911
20. Schubert A-K, Seneviratne V, Stolz J, et al. The effect of adjuvants added to local anaesthetics for single-injection upper extremity peripheral regional anaesthesia. *Eur J Anaesthesiol.* 2023; Publish Ah:1-19. doi:10.1097/eja.0000000000001860

