In New Zealand, an estimated 5% of the population (aged 15 years+) used cannabis medicinally at the time of policy change in NZ. A challenge in studying medicinal cannabis use lies in the blurred boundary between medical, therapeutic and recreational uses of cannabis. This blurring between medicinal and recreational use makes an interesting contrast with alcohol, although some of us likely kid ourselves about the medicinal qualities of a glass of wine after a day in the anaesthetic clinic. Keeping this blurring in mind, the next quote may be important.

"Whether or not New Zealanders decide to legalise cannabis in a few weeks’ time, the use of medicinal cannabis is going to increase. Legalising recreational cannabis will mean the increase happens faster. This article is one of two cannabis-related articles in a recent edition of the NZ Medical Journal. It is a survey based on a convenience sample (responders to a Facebook survey request) of New Zealanders aged 16 years and above who used medicinal cannabis within the previous 12 months. It provides a fascinating ‘window in time’ view of the subject. There is a pleasing absence of both statistics and judgements. Rather than try to summarise the article in my own words, I have picked out a few quotes that caught my eye.

"In New Zealand, an estimated 5% of the population (aged 15 years+) used cannabis medicinally at the time of the New Zealand Health Survey 2013."  
- In today’s figures that would mean about 200,000 people (n=3634 in this survey) The convenience sample is likely biased towards people who found cannabinoids helpful.

"A challenge in studying medicinal cannabis use lies in the blurred boundary between medical, therapeutic and recreational uses of cannabis."  
- Medical implying the use is recommended by a clinician providing care.

"Nearly 60% (58.5%) reported that, in addition to their medicinal use, they had also used cannabis for recreational reasons in the past year."  
- This blurring between medicinal and recreational use makes an interesting contrast with alcohol, although some of us likely kid ourselves about the medicinal qualities of a glass of wine after a day in the anaesthetic clinic. Keeping this blurring in mind, the next quote may be important.

"Some American studies have found reduced opioid overdose deaths in US states with medical cannabis programmes."  
- Cannabinoids may allow people to use less strong opioids for their persistent pain.

If you get the chance, I would recommend reading and reflecting on this surprisingly interesting article.

Abstract
Survival after primary breast cancer surgery following propofol or sevoflurane general anesthesia

Authors: Enlund M et al.

Summary: These authors reported on a retrospective cohort of 6305 patients from Sweden who were anaesthetised for breast cancer surgery, comparing outcomes associated with sevoflurane versus propofol anaesthesia. The respective 5-year survival rates for propofol and sevoflurane recipients were 91.0% and 81.8%; statistical significance for the difference was dependent on the adjustment method used, from non-significant to significant (hazard ratio 1.46 [95% CI 1.10, 1.95]).

Comment (JB): The novelty of this retrospective study was the decision to present two different styles of statistical analysis. One inferred no benefit of propofol over sevoflurane (Cox multiple regression), the other inferred that using propofol resulted in a survival benefit after surgery for breast cancer (propensity scoring to create matched pairs). The regression analysis used the whole sample (n=6305), but the risk of a type 2 error would have been inherently higher, the matched pair analysis would be less vulnerable to a type 2 error, but a proportion of the original sample would be excluded if there was no well-matched pair, introducing a sampling bias known as the paradox of propensity scoring. Using the most rigorous degree of matching, which included matching the hospital where the operation took place, 84% of the original sample was excluded, and propofol was associated with a survival benefit compared with sevoflurane with a p value of 0.01. Actual 5-year survival rates in the two groups were 91% and 81.8%. If propofol-based TIVA really improved survival rates by 8%, then our practice would change. TIVA would become virtually universal for breast cancer surgery and no doubt this anaesthesia selection would be extended to any cancer surgery where there was a risk of cancer recurrence or metastasis. Hence the value of the large RCT that some of the authors of this paper are involved with, examining the same basic clinical question. Recruitment should end 2021.

It is also worth considering that as we gradually move to completely electronic highly integrated medical records, we will have more and more data available for analysis. With this capability, we will need to become better at interpreting retrospective data or risk changing practice based on an illusion. To quote these authors, “Obviously, raw, unadjusted data tend to be so skewed that such a limited analysis may be delusive” (there is a nice word to apply to statistics).


Abstract

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*1Time to recovery after sugammadex compared with neostigmine was significantly shorter [P<0.0001] at 1.5 vs 18.6 min respectively. Predictability of response was greater with sugammadex than neostigmine (98% of patients vs 11% respectively) recovering to a TOF ratio of 0.9 within 5 min.1

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Indications: Reversal of neuromuscular blockade induced by rocuronium or vecuronium. Dosage & Administration: Immediate reversal of intense block. 16.0 mg/kg IV three minutes following administration of rocuronium (1.2 mg/kg) in adults, (including: elderly, obese patients, patients with mild and moderate renal impairment and patients with hepatic impairment). Routine reversal of profound block 4.0 mg/kg IV following rocuronium— or vecuronium induced block when recovery has reached 1-2 post-tetanic counts; in adults. Routine reversal of shallow block. 2.0 mg/kg IV following rocuronium— or vecuronium— induced block when recovery has occurred up to reappearance of T2, in adults; 2.0 mg/kg IV following rocuronium in children and adolescents (2–17 years). Contraindications: Hypersensitivity to sugammadex or to any of the excipients. Precautions: Repeated exposure in patients; respiratory function monitoring during recovery; use for reversal of neuromuscular blocking agents other than rocuronium or vecuronium—; coagulopathy—; severe renal impairment; severe hepatic impairment; marked bradycardia, use in ICU; hypersensitivity reactions (including anaphylactic reactions); pregnancy, lactation; infants less than 2 years of age; including neonates; prolonged neuromuscular blockade (sub-optimal doses) and delayed recovery. Interactions: Potential identified with propofol, hormonal contraception. Could interfere with progesterone assay and some coagulation parameters. Adverse Reactions: Dysgeusia, prolonged neuromuscular blockade, anaesthetic complication (restoration of neuromuscular function), hypersensitivity reactions varying from isolated skin reactions to serious systemic reactions (i.e. anaphylaxis), bronchospasm and pulmonary obstructive events. Severe hypersensitivity reactions can be fatal. Events associated with surgical procedures under general anaesthesia. Isolated cases of marked bradycardia and bradycardia with cardiac arrest. Based on Data Sheet prepared 02 April 2019.

For more information, please go to http://www.medsafe.govt.nz
Combined non-intubated anaesthesia and paravertebral nerve block in comparison with intubated anaesthesia in children undergoing video-assisted thoracic surgery

Authors: Wei W et al.

Summary: Sixty patients aged 3–8 years scheduled for elective video-assisted thoracic surgery were randomised 1:1 to nonintubated anaesthesia with paravertebral nerve block or general anaesthesia with tracheal intubation. Compared with the intubated control group, the nonintubated group had decreases in postoperative in-hospital stay (primary outcome; 4 vs. 5 days [p=0.013]), airway complications (6.9% vs. 27.6% [p=0.037]), emergence delirium, emergence time, time in PACU, time to first eating food, time to first out-of-bed activity, pain scores and sufentanil consumption. PONV, pneumothorax and other complications did not differ significantly between the two groups.

Comment (JB): Spontaneous ventilation general anaesthetic using a laryngeal mask (SV-LMA) for paediatric video-assisted thoracoscopic surgery seemed a bit radical to me. In this RCT (n=60), the authors showed that SV-LMA was clearly better than their traditional approach of a single lumen tube, IPPV and a bronchial blocker. Because SV-LMA patients also received single-shot paravertebral blocks and the IPPV-endotracheal tube group did not, it is not possible to tease out whether the shorter length of stay, the faster emergence and the fewer cases of emergence delirium in this group were due to better analgesia and less opioids, or to the style of anaesthesia, or both. The SV-LMA group also had fewer airway complications. Being able to use a single lumen tube and no blocker makes the anaesthesia a fair bit simpler. All patients received sevoflurane and a 0.5 µg/kg/hr infusion of dexmedetomidine. The operations were for pectus excavatum correction (50%), mediastinal mass biopsy (30%) and lung biopsy (20%), and were an average about 45 minutes long. Oxygen saturations were usually maintained easily without difference in the rates of hypoxaemia, between the groups. Despite the use of a paravertebral block in combination with less intra-operative opioids, the CO₂ tended to climb in the SV-LMA group and the authors had a strategy of accepting an ETCO₂ up to 9 kPa before switching to IPPV via the laryngeal mask (1/30 patients).


Spinal or general anaesthesia for surgical repair of hip fracture and subsequent risk of mortality and morbidity

Authors: Morgan L et al.

Summary: These authors reported differences in mortality and morbidity between patients undergoing spinal anaesthesia versus general anaesthesia during hip fracture surgery (propensity score matching was used to generate patient pairs), and also investigated the impact on mortality of pre-existing cardiovascular disease or chronic obstructive pulmonary disease. There was no significant difference between the spinal and general anaesthesia groups for 30- or 90-day mortality (respective odds ratios 0.97 [95% CI 0.8, 1.15] and 0.93 [0.82, 1.05]). Compared with general anaesthesia recipients, spinal anaesthesia recipients had lower likelihoods of blood transfusion (odds ratio 0.84 [95% CI 0.75-0.94]) and urinary tract infections (0.72 [0.61, 0.84]), but a greater likelihood of developing a chest infection (1.23 [1.07, 1.42]), deep vein thrombosis (2.18 [1.07, 4.45]) or pulmonary embolism (2.23 [1.16, 4.29]).

Comment (JB): This is not one of those studies that will lead to wholesale practice change, but it is well written and quite entertaining. After surgery for proximal third of femur fracture, 30-day and 90-day mortality rates were the same, whether patients had general anaesthetics or spinal anaesthetics. There were some differences in morbidity rates; some of these seemed quite predictable, e.g. lower transfusion rates with spinal anaesthesia, and some more unexpected, e.g. higher rates of urinary tract infections with general anaesthesia, and higher rates of pulmonary emboli and of chest infections with spinal anaesthesia. Much of the discussion was devoted to exploring the potential for important confounding factors. Two caught my eye. The dataset used for propensity scoring did not include detailed medication information (just whether a patient was on four or more regular medications) nor coagulation results. There is a risk that coagulation status and related medication regimens created a bias, i.e. anaesthetists would favour general anaesthesia if the coagulation and/or platelet count were not in the normal ranges. This is one of the factors that would have fed into the other confounder that caught my eye, the propensity score paradox. This paradox occurs when the process of selecting only well-matched pairs of patients means an important cohort of patients is excluded from the study and a new bias is introduced, e.g. the worst chronic obstructive pulmonary disease patients would usually be offered a spinal, so it would be hard to find perfect general anaesthetic matches. In this study, 846 of the 8144 patients could not be adequately matched.

Reference: Anaesthesia 2020;75:1173–9

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Independent commentary by Dr John Barnard

Dr John Barnard works as an anaesthetist at Waikato Hospital with a part time academic component. In addition to his role in the operating theatres, four years ago he became the Clinical Director of the Hospital Pharmacy and Chairman of the hospital’s Medicines and Therapeutics Committee.

Independent commentary by Gwyn Lewis

Associate Professor Gwyn Lewis is a neurophysiologist based at AUT University’s North Shore Campus in Auckland. She obtained a PhD in motor control from the University of Auckland in 2003. Gwyn had an extended post-doctoral experience undertaking research in motor control, rehabilitation and neurophysiology at the Rehabilitation Institute of Chicago. She currently spends half her time teaching in AUT’s physiotherapy programme and the other half undertaking pain research in the Health and Rehabilitation Research Institute. Most of her research is in pain neurophysiology and how it relates to persistent pain development, efficacy of pain modulation pathways, and cognitive factors and psychosocial influences.
Perioperative use of gabapentinoids for the management of postoperative acute pain

Authors: Verret M et al., the Canadian Perioperative Anesthesia Clinical Trials (PACT) Group

Summary: This was a systematic review with meta-analysis of 281 trials (n=24,682) of gabapentinoids in adults undergoing surgery. Compared with control groups, gabapentinoid recipients had lower postoperative 100-point pain intensity scores at 6, 12, 24 and 48 hours (respective mean differences –10.5, –9.7 and –3.8 points), although this effect was not deemed to be clinically significant at any of the timepoints. Type of drug (gabapentin or pregabalin) did not impact on the findings. Gabapentinoids also had no significant effect on pain intensity at 72 hours, subacute pain or chronic pain; however, they did lower the risk of PONV, but with increased dizziness and visual disturbances.

Comment (JB): Those Canadian authors note that the American Pain Society supports the perioperative use of gabapentinoids while their European counterparts, the European Society of Regional Anaesthesia and Pain Therapy, does not. This variation in practice on a grand scale provided the drive to perform a systematic review and meta-analysis. The authors conclude that gabapentinoids do not offer clinically significant analgesia, and they do cause an additional burden of side effects. They also state that no more studies are needed as the results are so robust. Done and dusted then? A critical feature of the analysis was the defined threshold reduction in pain score that determined clinically significant analgesia. The meta-analysis demonstrated that gabapentinoids lowered pain scores, but because the average reduction was less than 10mm on a 100mm long visual analogue scale, this improvement was deemed not clinically significant. There was another subtle but critical assumption built into the analysis, that the significance of a 10mm drop was the same whether it was from a high pain score starting point, or from a low pain score starting point, i.e. a drop from 90 to 80mm would be no more ‘clinically’ significant than a drop from 30 to 20mm. The authors included a couple of interesting references to back up these decisions. Despite the rigour of this systematic review, in my view the door to further research hasn’t been deadbolted. Using gabapentinoids as a routine first-line component of multimodal analgesic regimen may be valuable. Behind the data and the conclusions is a subtheme of needing to curb (or at least understand the impact of) rampant off-label behaviours with increased child disability, and increased parent depression and anxiety.

Parent cognitive, behavioural, and affective factors and their relation to child pain and functioning in pediatric chronic pain

Authors: Donnelly TJ et al.

Summary: This systematic review and meta-analysis included 54 studies reporting data on associations between parent factors and child pain and disability; the most commonly assessed parental constructs reported on were parent pain catastrophising and protective behaviour. The meta-analyses explored associations of parents’ pain catastrophising, protective behaviours, anxiety/depression and stress (associated with parenting a child with chronic pain), with children’s pain, disability, school functioning and emotional functioning. Greater protective behaviour was moderately associated with poorer school functioning. The following weaker associations were also identified: greater parent pain catastrophising with increased child disability, higher protective behaviours with increased child disability, and increased parent depression and anxiety with increased child disability.

Comment (GL): Something else to blame on your parents. The main rationale for this review was to determine if interventions targeting parents would provide another avenue to treat childhood pain. First, we need a clear idea of what parental behaviours are associated with child pain and function, and that was the goal of this review. It was very well designed, and I liked that the analyses were based on evidence-based hypotheses. This limits the chance of random statistical analyses revealing spurious findings. While there were a number of significant relationships identified, most of these were weak and the findings largely followed the hypotheses, so there was nothing really startling (like I mentioned, it was very evidence-based). One point I am interested in, which the authors did raise too, is the temporal relationship between parental factors and child pain/function. While we largely assume that it is the parental factors that are influencing child outcomes, it is entirely possible that child pain factors may be influencing parental behaviour. It’s definitely worth following up on before we really do go and blame the parents for everything.
Caring for patients with pain during the COVID-19 pandemic

Authors: Shantha H et al.

Summary: This paper reported the consensus recommendations, based on best available evidence and expert opinion, from an international panel with respect to managing patients with pain during the COVID-19 pandemic. The risk that patients with chronic pain may not receive important treatment due to restrictions was highlighted, as was a possible increase in the risk of acquiring SARS-CoV-2 infection, due to multiple factors. The following considerations for healthcare professionals caring for patients with chronic pain were described: ensure continuity of care and pain medications, use telemedicine, maintain a biopsychosocial management approach, evaluate and ensure safe conduct of urgent and semi-urgent procedures, and recognize the need to modify ongoing therapies to decrease COVID-19 risk. The authors acknowledge that these recommendations may need to be adapted to local workplace policies, particularly in light of the current rapidly evolving situation.

Comment (GL): The article is formulated as guidelines for physicians and health providers for managing chronic pain patients during the COVID-19 pandemic, and the contributing authors were described as being physicians and psychologists. On a quick glance through the author affiliations, I could identify one psychologist and nine physicians, and that tended to set the tone of the guidelines. Two-thirds of the therapeutic considerations presented directly relate to medication, with one useful suggestion that “Multidisciplinary therapies could be helpful in overcoming increased opioid needs and procedures during the pandemic.” To be fair, the authors do bring up some potential online tools and resources for patient self-management, but I think overall you’d find these recommendations far more useful if you were a physician rather than a psychologist or allied health provider. In short, I was a bit disappointed with the findings and that tended to set the tone of the guidelines. While some risk factors identified were common predictors of chronic pain (pre-existing pain, fear of medical reason the person was in the ICU, and surgical involvement was not a risk factor for persistent pain in the medical reason the person was in the ICU), and surgical involvement was not a risk factor for persistent pain in the medical reason the person was in the ICU, and surgical involvement was not a risk factor for persistent pain in the medical reason the person was in the ICU. Interestingly, persistent pain tended not to be related to the medical reason the person was in the ICU, and surgical involvement was not a risk factor for persistent pain in the medical reason the person was in the ICU.

Reference: Anaesthesia 2020;75:935–44

Persistent pain in intensive care survivors

Authors: Mäkinen OJ et al.

Summary: These authors conducted a systematic review of nine studies reporting on the incidence or prevalence of, and risk factors for, persistent pain following critical illness. The reported incidences of persistent pain following intensive care were variable (26–77%), with no differences between medical and surgical patients. The following risk factors for persistent pain were described: acute pain at ICU discharge, higher thoracic trauma score, surgery, pre-existing pain, organ failure, longer ventilation, longer hospitalization and sepsis.

Comment (GL): This study takes on new relevance given the substantial numbers of people globally who have spent time in an ICU due to COVID-19. I was disappointed that such a small number of studies were included in the review, as it doesn’t contribute much to the area given a substantial narrative review was published on the topic last year, which itself included a fairly rigorous systematic search. A considerable number of studies were excluded from the current systematic review because their primary aim was not to examine the incidence of chronic pain post-ICU, but they did capture the relevant information in secondary measures. I’m all for inclusiveness in meta-analyses, which seems to be in contrast with the statistical purists who set far more strict boundaries. Regardless, the current review highlights a new concern for those recovering from major illness involving ICU stays. Although the intensity of persistent pain was fairly low in most of the studies, this was not always the case and suggests that persistent pain is likely to have a marked impact in some people. Interestingly, persistent pain tended not to be related to the medical reason the person was in the ICU, and surgical involvement was not a risk factor for persistent pain in the longer term. While some risk factors identified were common predictors of chronic pain (pre-existing pain, fear of movement), others were novel and specific to the study, such as the length of ICU stay and ventilator use. Closer examination of the type of pain present post-ICU stay, e.g. whether it has a neuropathic or nociceptive component, may provide more information on the potential mechanisms at play and how it can best be managed or avoided.


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