

# COCHRANE CORNER



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## CONSERVATIVE INTERVENTIONS FOR TREATING MIDDLE THIRD CLAVICLE FRACTURES IN ADOLESCENTS AND ADULTS

The last decade has witnessed some stunning controversy over surgical *versus* non-surgical management of middle third clavicle fractures. There are a number of well conducted randomised controlled trials (RCT) with somewhat conflicting results, at least superficially. While this interesting debate continues, the average orthopaedic surgeon is left with no clear directive as to how the majority of middle third clavicle fractures attending our clinics should be treated. For those of us practising conservative treatments, there are a range of different strategies and some evidence to support the choice of conservative treatment method. This intervention review from Brazil, now in its third update, evaluates the efficacy of different methods of non-operative treatment.<sup>1</sup>

The authors were able to identify three trials with a total of 296 participants comparing figure-of-eight bandages with an arm sling. They found 'very low quality evidence' of similar shoulder function in both groups across the three trials, and only one of the three trials reported greater pain and discomfort in the figure-of-eight group. Furthermore, no differences were seen in adverse outcomes or return to activities.<sup>1</sup>

A fourth trial included in this review (120 participants) provides the best, but still 'moderate quality', evidence, and compared therapeutic ultrasound with placebo. No differences were found in pain, time to fracture healing or adverse events.<sup>1</sup> With only a limited number of poor quality and/or underpowered trials, it seems that there is no obviously superior way to immobilise this common injury, and it is somewhat disheartening from the clinical perspective given the numbers of treatments that are available.

## LIPOSOMAL BUPIVACAINE INFILTRATION AT THE SURGICAL SITE FOR THE MANAGEMENT OF POST-OPERATIVE PAIN

The management of post-operative pain has become increasingly interesting to surgeons as it has improved patient experiences, as well as facilitated earlier mobilisation and reduced length of stay. In the days of 'payment by results' and national dashboards, patient expectations and experiences now have a direct impact on hospital funding. Local anaesthetic infiltration plays a key role in the now-common enhanced recovery programmes we see in lower limb arthroplasty surgery. This study reviews the novel liposomal bupivacaine which, although more expensive, is thought to produce a sustained release of local anaesthetic at the surgical site.<sup>2</sup>

Of the nine studies that the authors reviewed, two studies (total 383 participants) were in knee arthroplasty and one study (193 participants)

reported outcomes in first ray surgery. One of the arthroplasty studies reported a better analgesic effect in the liposomal bupivacaine group when compared with bupivacaine hydrochloride at rest,<sup>3</sup> while the other study reported generally less post-operative supplementary opioid analgesic use with liposomal bupivacaine, though this finding did not achieve statistical significance.<sup>4</sup> The study looking at bunionectomies only compared the liposomal bupivacaine with placebo, finding that the drug provided extended pain relief and decreased post-operative opioid use when compared with placebo.<sup>5</sup>

These studies reflect the general conclusions that were drawn by the Cochrane authors, however, they suggest that the limited evidence was not sufficient to establish a clear superiority of liposomal bupivacaine over bupivacaine hydrochloride.<sup>2</sup> With trends towards improvement it would not seem unreasonable to use the agent, however, given the increased cost and limited evidence of efficacy, one wonders if that healthcare dollar might be better spent elsewhere.

## CAPNOGRAPHY *VERSUS* STANDARD MONITORING FOR EMERGENCY DEPARTMENT PROCEDURAL SEDATION AND ANALGESIA

The understanding, and often the use, of procedural sedation in the emergency department (ED) is an essential part of the armamentarium for the orthopaedic registrar performing minor procedures such as joint relocations and reductions of displaced fractures in the ED. Doing this in an often uncontrolled ED environment, devoid of the safety net of our operating room anaesthetists, means safe sedation is paramount. This review from Canada looks at whether capnography and standard monitoring is better than standard monitoring alone in ED patients undergoing sedation for procedures.<sup>6</sup>

The authors found three trials (total 1272 participants) showing no differences in the rates of oxygen desaturation and hypotension between the two groups.<sup>6</sup> Furthermore, this evidence was deemed to be of moderate quality and, as such, there does not seem to be any substantial evidence that using capnography as well as standard monitoring decreases clinically harmful events<sup>6</sup> when undertaking procedures under sedation.

## INTERVENTIONS FOR TREATING SIMPLE BONE CYSTS IN THE LONG BONES OF CHILDREN

There are a number of treatment options available in the management of these common benign lesions in the growing child, ranging from simple

observation and activity modification to more invasive procedures such as aspiration or curettage.

This updated review from China sought evidence across the range of available interventions but, like so many Cochrane reviews, was scarce on evidence.<sup>7</sup> The authors identified only one suitable trial. The included trial was a multicentre RCT that compared bone marrow injection with steroid injection for treating simple bone cysts. The trial reported the outcomes of 77 patients, and while the study showed more success in radiological healing at two years with steroid injections, the authors make note of the ‘very low quality evidence’ and highlight their uncertainty as to whether the result was a true finding.<sup>7</sup> Additionally, both groups showed a less than 50% rate of healing at two years, though no differences in adverse outcomes were noted.<sup>7</sup>

#### FUTURE REVIEWS

The last few months have seen the publication of a number of new protocols of interest. In particular, there is a major trauma theme with a protocol to assess the efficacy of organised trauma systems and designated trauma centres,<sup>8</sup> and also a protocol assessing the efficacy of blood product transfusion strategies.<sup>9</sup> We hope this review provides evidence to continue improving our management of the severely injured patient.

#### REFERENCES

1. **Lenza M, Faloppa F.** Conservative interventions for treating middle third clavicle fractures in adolescents and adults. *Cochrane Database Syst Rev* 2016;12:CD007121.
2. **Hamilton TW, Athanassoglou V, Mellon S, et al.** Liposomal bupivacaine infiltration at the surgical site for the management of postoperative pain. *Cochrane Database Syst Rev* 2017;2:CD011419.
3. **Bramlett K, Onel E, Viscusi ER, Jones K.** A randomized, double-blind, dose-ranging study comparing wound infiltration of DepoFoam bupivacaine, an extended-release liposomal bupivacaine, to bupivacaine HCl for postsurgical analgesia in total knee arthroplasty. *Knee* 2012;19:530–536.
4. **Pacira Pharmaceuticals, Inc.** A phase 3 study to evaluate the safety and efficacy of SKY0402 in subjects undergoing total knee arthroplasty (TKA). February 2009. <https://clinicaltrials.gov/ct2/show/NCT00745290> (date last accessed 21 April 2017).
5. **Golf M, Daniels SE, Onel E.** A phase 3, randomized, placebo-controlled trial of DepoFoam® bupivacaine (extended-release bupivacaine local analgesic) in bunionectomy. *Adv Ther* 2011;28:776–788.
6. **Wall BF, Magee K, Campbell SG, Zed PJ.** Capnography versus standard monitoring for emergency department procedural sedation and analgesia. *Cochrane Database Syst Rev* 2017;3:CD010698.
7. **Zhao JG, Wang J, Huang WJ, et al.** Interventions for treating simple bone cysts in the long bones of children. *Cochrane Database Syst Rev* 2017;2:CD010847.
8. **Mwandiri M, Stewart B, Hardcastle TC, Rubiano AM, Gruen RL.** Organised trauma systems and designated trauma centres for improving outcomes in injured patients. *Cochrane Database Syst Rev* 2017;1:CD012500.
9. **Wong H, Pottle J, Curry N, et al.** Strategies for use of blood products for major bleeding in trauma. *Cochrane Database Syst Rev* 2017;4:CD012635.

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