

COCHRANE CORNER



New and updated reviews published by the Cochrane collaboration

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The first Cochrane Corner of 2014 reports on a bumper number of new and updated reviews from the Cochrane Collaboration. Since November the Cochrane collaboration have turned their beady eye to scrutinise several topical (and sometimes controversial) orthopaedic issues such as pin site care, the use of Continuous Passive Motion (CPM) in the rehabilitation of total knee replacement (TKR) and the efficacy of nerve blocks.

Pin site care and external fixators. External fixators, either traditional single axis or circular frames, have been in and out of vogue over the last century, however, they continue to find application in deformity, high-energy trauma and infection work. With the advent of damage-control orthopaedics, the external fixator has become a much more common sight on the ICU, and indeed in the fracture clinic. Offering benefits in soft-tissue and SIRS management, the humble ExFix is also able to be used for definitive care and allows for early mobilisation. The external fixator's biggest disadvantage is not only psychosocial - there is an appreciable rate of pin site infection and there are sequelae. Theoretically, effective post-operative care of pin sites should reduce the rate of infection. Though many different protocols have been described, there is no clear consensus and pin site care is currently based on individual surgeon preference or departmental protocols. An updated review from New Zealand examines the efficacy of different regimes of pin site care for preventing pin site infection rates associated with external fixators.¹ The review team were able to include 11 RCTs with a total of 572 participants included in the analyses. The review was able to evaluate a number of comparisons; three studies compared a cleansing regimen of any type with no cleansing, three studies compared alternative cleansing solutions (saline, alcohol, povidone iodine, hydrogen peroxide), three studies compared different methods of cleansing (daily or weekly, sterile vs non sterile techniques), one study compared dressings with no dressings and six studies looked at the use of different types of dressings. Of all comparisons made, few differences were found between different regimes in terms of infection rates, and the authors of this review only really discuss two findings of note. One study found that pin sites cleansed with hydrogen peroxide followed by application of Xeroform dressing had a lower rate of infection than other combinations of cleansing and dressing or no cleansing.² Another study found the risk of pin site infection was reduced with polyhexamethylene biguanide gauze when compared with plain gauze.³ Both of these studies were deemed to be of low quality and the findings could be due to chance. Overall, the authors report study quality to be poor, often underpowered along with methodological flaws. Only two studies were blinded and few adjustments were made for multiple confounders. The review, like many Cochrane reviews, concludes that there is insufficient evidence to inform best practice and further, adequately powered, well designed RCTs are required. However, it seems conduct of research in this area is

difficult due to the large number of variables and difficulty with finding valid outcome measures and uniform definitions for pin site infection.

REHABILITATION FOLLOWING TKR

Total knee replacement is a complex intervention. The individual components required to provide care number in the hundreds and in each centre there are multiple differences in everything from the post-operative physiotherapy regime to the type of raised toilet seat provided - each of which could reasonably affect the outcome of the patients. Determining what causes successful outcomes following total knee arthroplasty (TKA) can be very tricky and, while clearly multifactorial, adequate post-operative rehabilitation is likely to have an important part to play. There are many potential regimes which can be patient- or therapist-led, group or individual. One area that evokes particular debate is the application of Continuous Passive Motion (CPM) which has also been used in many centres as part of a standard post-operative regimen. It is postulated that CPM prevents knee stiffness and improves range of motion, among other therapeutic benefits, however, controversy over its use still remains, with surgeons not using it at all or only using it in specific clinical situations. In a much larger than average review from Australia, researchers analysed 24 RCTs that compared CPM and standard care with standard post-operative care without CPM. The participants in the analysed studies totaled 1445, with all included in qualitative and meta-analyses.⁴ Meta-analyses of pooled data looking at short-term active knee flexion found a benefit of only 2° with CPM. Furthermore, medium- to long-term effects on all active and passive ROM found mean effects of CPM to be less than 3° across the board. These results were not statistically significant and the authors suggest that most patients, let alone clinicians, would struggle to even notice an improvement of 2° to 3°, never mind deem it to be clinically important enough to justify the widespread use of CPM. Eight trials totaling 581 participants reported on risk of manipulation under anaesthesia (MUA) following TKA. Only 25 (7%) of these participants required an MUA following surgery. Analyses found low-quality evidence that CPM reduces the risk of MUA with reported relative risk of 0.34. An RR of 0.34 with an incidence proportion of 7% corresponds to an absolute overall risk reduction of MUA of 4%. However, the authors also clearly state that the RR is imprecise with large confidence intervals making a smaller effect a possibility. None of these eight studies performed well on evaluation of study quality and most had methodological flaws and so, together, the evidence for CPM and risk of MUA is unreliable. Post-operative knee pain was also subject to evaluation with eight studies totaling 414 participants reporting on pain outcomes. For the most part, the evidence was of low quality suggestive of no statistically or clinically significant differences in short-, medium- or long-term pain scores. The

results of the quantitative analysis for length of stay were difficult to draw conclusions from but showed a mean difference of 0.4 days in favour of the group receiving CPM. However, again with a wide confidence interval the true effect could be clinically meaningful. The authors suggest that the quality of the evidence is variable across the board and intervention effects are either too small or unclear to justify the use of CPM routinely in standard post-operative care for TKA – a conclusion that none of us here at 360 find to be too controversial.

NERVE BLOCKS IN FEMORAL FRACTURES

Femoral fractures are painful injuries in which prompt effective analgesia is required. The need is further enhanced in the acute period where patients are being transferred from stretcher to bed, moved around for x-rays or having splints or traction applied to their leg. A new intervention review from Canada looked at the efficacy of nerve blocks for femoral fractures in the initial pain management of children.⁵ While nerve blocks carry the potential risks of a minor procedure and require clinical expertise to administer, they offer the potential benefits of a shorter time to more effective pain relief as well as avoiding the complications of systemic opiate analgesia. This review only found one study suitable, so is more of a commentary than a review. This small RCT comprises 55 participants from a tertiary care children's hospital in the United States and compared the effectiveness of pain relief with fascia iliaca compartmental block (FICB) with the administration of intravenous morphine sulphate. The majority of patients had middle third femoral fractures with a mean age of 5.2 and 5.8 years in the FICB and morphine groups, respectively.⁶

Failure of analgesia at 30 minutes was the primary outcome measure, and a trend towards FICB being more effective was found although this was only statistically significant in one of three pain scales used while the observed duration of analgesia was also significantly greater in the FICB group with less requirement of additional medication over a six-hour period. The authors of the review report that, overall, there is limited and low-quality evidence (high risk of bias in methodology and small study numbers) from this study from which to draw conclusions.

PAIN RELIEF AFTER SHOULDER SURGERY

From acute pain management to post-operative pain management, this new review from Pakistan looks specifically at major shoulder surgery comparing the analgesic efficacy of parenteral analgesia with inter-scalene brachial plexus block (ISBPB).⁷ The authors included two RCTs for this study reporting the outcomes of 147 participants. In both studies, the measured pain scores (Visual Analogue Scale and Numerical Rating Pain Scale) were significantly lower at almost all time points with ISBPB. While we see significant results from these studies, the authors emphasise that these are small studies with a high risk of bias, and therefore no conclusions should be drawn. To add to the lack of reliability, there was also a high number of dropouts (n = 17) from one of the studies due to ISBPB complications such as motor block and catheter dislocations. These dropouts came from the study using nerve stimulator for ISBPB placement. The second study had no such dropouts and placed ISBPB with ultrasound guidance which is now current practice.

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