

COCHRANE CORNER



New and updated reviews published by the Cochrane collaboration.

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INTRAMEDULLARY NAILS FOR EXTRACAPSULAR HIP FRACTURES IN ADULTS

The Peterborough (UK) Hip Fracture Unit, led by Martyn Parker, continues to produce a range of high quality research into one of the most common diagnoses in orthopaedics. Their most recent contribution is this updated review aiming to address the uncertainties associated with the effects of different designs of intramedullary nails in the treatment of extracapsular hip fractures in adults.¹ For such a common and well-studied injury, intuitively, one might expect conclusive results.

Since the first review in 2006, the use of intramedullary devices is increasing with hypothesised biomechanical and clinical benefits over the venerable Dynamic Hip Screw in certain unstable fracture patterns or subtrochanteric fractures. Industry have been pushing these implants hard with claims of better functional outcomes and reduced morbidity associated with the surgery, hand in hand with lower long-term failure rates. This updated review included eight new trials to amass a total of 17 studies, allowing 12 comparisons of cephalomedullary nails to be included in this review.

In one of the best studied comparative interventions in orthopaedics a total of 2130 randomised participants were included in the meta-analysis. The various comparisons of different designs of proximal femoral nail included the proximal femoral nail (PFN), the Gamma and Gamma 3 nail, the ACE trochanteric nail, the proximal femoral nail antirotation (PFNA) and PFNA 2, the gliding nail, the Russell-Taylor recon nail, the ENDOVIS nail, the Targon nail, the intramedullary hip screw (IMHS) and the InterTan nail. Amazingly, there were no individual trials able to find any significant differences in the main outcomes (including function, mortality, fixation complications and re-operation rate). There were only two exceptions to this with very low quality evidence studies suggesting poorer mobility in the ENDOVIS group *versus* the IMHS and an increase in thigh pain with the PFNA 2 *versus* the InterTan nail.

Despite the advances and modifications in intramedullary implant design and its increased use over the last decade, alongside a significant update in the body of evidence, the authors have come to the conclusion that there are no important differences between the nails currently available that have been studied. The current consensus is that the DHS remains the gold standard implant for the vast majority of extracapsular hip fractures. Here at 360 we would concur with the authors of this review when they very reasonably state that comparing IM nail designs is not a priority and that their comparison with the sliding hip screw is more important.

COMPUTER-ASSISTED SURGERY FOR KNEE LIGAMENT RECONSTRUCTION

In a second updated review, this time from Rotterdam (the Netherlands),

investigators tackled the high-tech but controversial topic of computer-assisted surgery.² The review attempts to answer the question, 'is ligament reconstruction surgery best achieved with conventional operating techniques or computer-assisted surgery for ACL or PCL injuries in adults?'

Ligament reconstruction is now commonplace for ACL-deficient unstable knees with graft position crucial to successful surgery. While there is still ongoing debate about the benefits of single- or double-bundle reconstruction in ACL surgery, it is known that malposition of the graft is highly likely to give rise to recurrent instability and surgical failure. Across the globe a technique of anatomic single-bundle reconstruction is the most popular, and intra-operative fluoroscopy has been well described to assist with anatomic tunnel placement. Most recently, attention has turned towards computer navigation to improve accuracy.

Surprisingly for such a niche question, five RCTs met the inclusion criteria for this review, all evaluated ACL reconstructions with either technique, and in total 366 participants were reported in the five included RCTs. The authors report no difference in patient-reported knee function or self-reported function scores and no difference in assessment of normal or nearly normal knees at final follow-up (1 year to 4.5 years). No adverse post-surgical events were reported in two trials, although there was no reporting of adverse events in the other three. Surgical time was increased in computer-assisted surgery with a mean range of difference of 9 minutes to 27 minutes across the five studies. There clearly is little evidence to support the use of computer-assisted surgery over conventional surgery and there is no evidence currently that this technique improves outcomes. The future currently looks relatively bleak for ACL surgeons with a number of high profile RCTs not demonstrating the expected improvements of ACL reconstruction over conservative treatments. It is also disappointing to find that computer assistance to achieve reliable tunnel placement does not result in improved outcomes.

SURGERY FOR TREATING FEMOROACETABULAR IMPINGEMENT (FAI)

There is growing interest in 'early intervention' in hip surgery, with patients having earlier surgery for a combination of 'morphological anomaly' and labral tears. In some parts of the world surgeons are even offering arthroscopic ligamentum teres reconstruction (obviously for a price!). This is supported by some emerging evidence that variations in morphology of the hip joint can cause progressive damage to the acetabular labrum and femoral head, resulting in pain and the possibility of early osteoarthritis. Along with new diseases come new treatments and, as such, a variety of surgical techniques have been used to correct shape abnor-

malities and repair soft-tissue lesions, mostly with the aim of correcting abnormal impingement between the femoral neck and labral rim. Given the explosion of treatments and evidence, a review team in Warwick (UK) set out to review the evidence, Cochrane style, and determine the benefits and safety of surgical therapies for treating FAI.³

The authors conducted a comprehensive literature review and were able to shortlist 11 studies examining the efficacy of FAI surgery. Sadly, further review found nine to be observational studies and two to have no suitable comparators. As such, no studies met the inclusion criteria but the authors did identify that four currently ongoing RCTs were awaiting reports and may provide possibilities for future updates.

INTERVENTIONS FOR TREATING FEMORAL SHAFT FRACTURES IN CHILDREN AND ADOLESCENTS

This new intervention review from the Cochrane group in Vellore (India) looked to assess the effects of interventions for treating femoral shaft fractures in children and adolescents.⁴ This comprehensive review highlighted ten suitable studies reporting a total of 531 fractures; an average of just 53 per study.

The trials were not all suitable for pooling of results, with four trials looking at surgical *versus* non surgical management in children aged between four and 12 years. The surgical groups were also heterogeneous with treatments as diverse as external fixation, intramedullary nailing, traction, spica or plaster cast. The authors were able to establish with moderate quality evidence that, as expected, surgery reduced the risk of malunion, however, it was associated with a higher incidence of adverse events such as infection. There were, on the other hand, similar parent satisfaction levels with external fixation *versus* plaster cast, but better overall satisfaction rates were published with intramedullary nailing than traction followed by cast.

While some of the included studies did examine comparison of non-surgical treatments such as the hip spica (single/double leg), skeletal traction and functional orthosis, the review team established that the evidence was unreliable and insufficient to draw conclusions on efficacy of any treatments. A similar conclusion was drawn with studies that made comparisons between surgical treatments where, again, the authors were unable to draw definitive conclusions owing to the very low quality of

evidence. This is another example of a common area of orthopaedic surgery where more evidence is urgently needed. The difficult intervention/no-intervention studies have already been done – some proper evaluations of the safety and efficacy of other interventions would be ideal.

CONTINUOUS PASSIVE MOTION (CPM) FOR PREVENTING VENOUS THROMBOEMBOLISM AFTER TOTAL KNEE REPLACEMENT (TKR)

The application of CPM after TKR evokes particular debate with the postulation that it prevents knee stiffness and improves range of movement. A review on this matter featured in 'Cochrane Corner' earlier this year suggested that CPM effects were unclear or too small to justify its routine use.

This updated review from Guangxi (China) looked at the possible wider therapeutic benefit of CPM in the prevention of venous thromboembolism (VTE) after TKR.⁵ The evidence behind chemical thromboprophylaxis after joint replacement has led to drug treatments becoming routine and the gold standard of care following lower limb arthroplasty. Despite this, thromboembolic events do occur and augmentation with mechanical prophylaxis such as TED stockings, calf compression devices and CPM are of interest and are included in the majority of the published national association guidelines.

Sadly, however, despite 11 published RCTs being included in this review, reporting the results of a total of 808 participants, there were no differences to be seen between the two with meta-analysis showing no differences in event rates – the CPM machines may be resigned to the dusty store room for the foreseeable future.

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