

# ROUNDUP<sup>360</sup>

## Hip & Pelvis

### Cemented hip replacement might be bad for your health

■ So the fightback starts with a paper that 360 feels will guarantee heated debate between the proponents and opponents of metal-on-metal hip resurfacing. A team from **Birmingham (UK)** has examined the mortality and revision rates for patients with osteoarthritis undergoing total hip replacement (THR). They compared these rates between patients undergoing cemented or uncemented procedures, as well as comparing outcomes for men undergoing stemmed total hip replacements and Birmingham hip resurfacing. This was a cohort study of about 275 000 patient records. The findings were astonishing in our view. There was a small but significant increased risk of revision with uncemented rather than cemented THRs, and a small but significant increased risk of death with cemented procedures. It is not known whether these are causal relations or caused by residual confounding. Compared with uncemented and cemented total hip replacements, the Birmingham hip resurfacing had a significantly lower risk of death in men of all ages.<sup>1</sup> Good Heavens, we think at 360. If there really is a higher mortality rate with cemented total hip replacements, and a lower one with hip resurfacing, this certainly does merit further investigation.

### Highly cross-linked polyethylene still must earn its wings

■ Highly cross-linked polyethylene (XLPE) is now widely used in the

belief that a lower wear rate might improve prosthetic survival. Consequently, a paper from **Gothenburg (Sweden)** is particularly interesting. In a Level I study, the authors randomised 60 patients (61 hips) to receive either polyethylene or XLPE cups combined with a cemented stem. The team then assessed 51 patients (52 hips) ten years post-operatively. They found no differences in cup migration, bone mineral density, radiolucencies, functional scores, and revision rate, although there was a trend towards improved stem fixation in the XLPE group. However, the overall stem failure rate was comparably high, without influencing wear rate in XLPE hips. So although XLPE displayed a low wear rate up to ten years after implantation when used in cemented THR, it showed no clear benefits in any other parameters.<sup>2</sup> Watch that space, we feel at 360. In this cost-cutting era XLPE will have to really show its worth in terms of prosthetic survival.

### iHOT-33 – a new hip outcome measure

■ The number of outcome scores available to an orthopaedic surgeon almost defies imagination. Furthermore, scoring systems are sometimes intensely personal and not always applicable to every nation. So a new score for young, active patients with symptomatic hip disease was something that 360 looked at with interest. Published from **Calgary (Canada)**, albeit with the involvement of surgeons from many different countries, the International Hip Outcome

Tool (iHOT-33) attempts to resolve the failings shown by other scoring systems. The iHOT-33 is an outcome measure designed for active patients presenting with a variety of symptomatic hip conditions. It was created using a process of item generation, item reduction, and pretesting. The questionnaire was tested for test-retest reliability; face, content, and construct validity; and responsiveness over a six-month period in patients after hip arthroscopy. The result has been a 33-item outcome measure, the iHOT-33. It uses a visual analogue scale response format designed for computer self-administration by young, active patients with hip pathology. Its development has followed the most rigorous methodology involving a very large number of patients. 360 is pleased to note that the iHOT-33 is said to be reliable and is highly responsive to clinical change. The authors suggest that it might be used as a primary outcome measure for prospective patient evaluation and randomised clinical trials.<sup>3</sup> Let us see, we think at 360. It is good to find a study with such excellent international collaboration. Some big names lie behind this work so perhaps we will all be using the iHOT-33 for our future studies.

### Hamstring injuries – their cause is still unknown

■ Hamstring injuries are the most prevalent non-contact injury in Australian football, rugby union, American football and sprinting. So write authors from **Brisbane (Australia)** as part of a very

comprehensive review of the topic. Hamstring injuries cause a huge amount of time away from training and competition, with consequent financial loss and diminished performance. Indeed 360 was astonished to learn that for the 1999 to 2000 season, English premier and football league clubs lost £74.4 million as a result of injury. This is a big sum. However, although hamstring injuries are common, their incidence has not declined. Indeed, the high rate of recurrent injuries suggests that the current understanding of the problem is incomplete. Although many agree upon the multifactorial nature of hamstring injuries, often individual risk factors and/or causes of injury are examined in isolation. The authors of this review bring together the causes, risk factors and interventions associated with hamstring injuries to better understand why the problem is so prevalent. Running is often identified as the primary activity type for hamstring injuries, perhaps related to the high eccentric forces and moderate muscle strain placed on the hamstrings. However, the exact causes of hamstring injuries remain unknown. It may be that accumulated muscle damage and/or a single traumatic event contribute. Potentially, all of these factors interact to varying degrees. Furthermore, anatomical factors, such as the biarticular arrangement, the dual innervations of biceps femoris, fibre-type distribution, muscle architecture and the degree of anterior pelvic tilt,

have all been implicated. Reported risk factors for hamstring injuries include age, previous injury, ethnicity, strength imbalances, flexibility and fatigue. Of these, little is known about why previous injury increases the risk of future hamstring injuries. Nevertheless, interventions put in place to reduce the incidence of hamstring injuries by addressing modifiable risk factors have focused primarily on increasing eccentric strength, correcting strength imbalances and improving flexibility. These methods have met with varied levels of success.<sup>4</sup> At 360 we found this a helpful review of the problem as not only have half our staff experienced hamstring injuries but it is still clearly an area that merits further research.

### Another hamstring view – predicting outcome

■ Because hamstring injuries are so common, clinicians are frequently asked to provide both an accurate diagnosis and prognosis to clubs and teams. This is not always easy, as suggested by another review article, this time from **Amsterdam (The Netherlands)**. Clearly hamstring injuries are all the rage in the recent orthopaedic literature. The authors undertook a literature search in Medline and Embase for articles between 1950 and April 2011. Meanwhile, a survey was distributed among the members of the European Society of Sports Traumatology, Knee Surgery and Arthroscopy, which focused on physical examination, prognosis, imaging and laboratory tests of hamstring injuries in elite athletes. The findings were most helpful. Experts considered medical history, posture and gait, inspection and palpation of muscle bellies, range of movement tests, manual muscle testing, referred pain tests and imaging to be most important in their initial assessment of hamstring injuries. Magnetic resonance imaging (MRI) was preferred over ultrasonography and should take place within three days of the injury. Important prognostic factors were the grade

of injury, the length of the muscle tear on MRI, MRI-negative injuries and the mechanism of injury.<sup>5</sup> This is another helpful review, we feel at 360, particularly for the orthopaedic surgeon who has a team manager breathing down his neck. The review is made doubly helpful by being open access.

### Total hip replacement – where do you feel the pre-operative pain?

■ At 360 it never ceases to impress us how diverse a patient's pain can be before their THR – knee, groin, buttock, back and other areas besides. Yet how many of these various pains will be resolved by means of surgery? An interesting paper from **Taoyuan (Taiwan)** has attempted to address this by asking patients to mark a map of body areas before and after surgery.

Patients were excluded if they had coexisting pathology of the knee or spine. The pain measurements were quantified using visual analogue scales. Of the 113 patients (113 hips) enrolled in the study, the groin, anterior thigh, buttock, anterior knee, and greater trochanter were the most common pain locations before THR. Pain over the lower back, shin, and calf areas, which were not generally considered to be referred from hip disease, was present in 21.2%, 7.1%, and 2.7% of patients, respectively. The presence of lower back pain was statistically more common in patients with a longer duration of hip symptoms. The results were intriguing. Regardless of the different pain patterns, 97.3% (110 of 113) of patients reported complete pain relief within 12 weeks of THR.<sup>6</sup> At 360 we find this paper to be most helpful as patients do vary so much in how they present and the prob-

lems they describe. At last we have some direction.

### Stemmed metal-on-metal – the failures continue

■ As part of the ongoing metal-on-metal bashing that seems to have dominated hip surgery for the past 12 months, a paper from **Bristol (UK)** ensures our prosthesis-related depression continues. Researchers analysed 402 051 arthroplasties on the National Joint Registry, of which 31 171 were stemmed metal-on-metal THRs. Sadly, the metal-on-metal THRs failed at high rates. Failure was related to head size, with larger heads failing earlier (3.2% cumulative incidence of revision for 28 mm heads and 5.1% for 52 mm heads at five years in men aged 60 years). The five-year revision rates in younger women were 6.1% for 46 mm metal-on-metal THRs compared with 1.6% for 28 mm metal-on-polyethylene THRs. In contrast, for ceramic-on-ceramic articulations, larger head sizes were associated with improved survival (five-year revision rate of 3.3% with 28 mm heads and 2.0% with 40 mm for men aged 60 years). 360 notes the conclusion can only be that metal-on-metal stemmed articulations give poor implant survival compared with other options and should not be implanted. All patients with these bearings should be carefully monitored, particularly young women implanted with large diameter heads.<sup>7</sup> However, since large diameter ceramic-on-ceramic bearings seem to do well, 360 is pleased to see that the authors support their continued use.



### Bipolar hemiarthroplasty, neuromuscular disease and dislocation

■ As with the rest of us, patients with neuromuscular disease can sustain a fractured femoral neck. In

some hands the treatment of this would be a bipolar hemiarthroplasty. However, it has been said that these patients experience a higher dislocation rate after surgery and 360 can understand why. Consequently, we read with interest a paper from **Yangsan (South Korea)** on this topic. The authors wished to establish three things: 1) whether the incidence of post-operative dislocation after bipolar hemiarthroplasty was greater in patients with neuromuscular disease than for those without; 2) whether function differed between those with and without neuromuscular disease after bipolar hemiarthroplasty of the hip; and 3) what the potential risk factors might be for dislocation. The authors retrospectively reviewed 190 patients who underwent bipolar hemiarthroplasties for fracture of the femoral neck between 1996 and 2008. Of the 190 patients, 42 had various neuromuscular diseases and 148 had no history of neuromuscular disease at all. Intra-operative stability was tested and a posterior soft-tissue repair was performed in all patients. The authors then determined the incidence of dislocation, post-operative leg length discrepancy, and femoral offset in patients with or without neuromuscular disease. The incidence of dislocation was 2.6% in all patients. However, there were similar rates of dislocation in the two groups: 4.8% (two of 42 hips) in patients with neuromuscular disease and 2.0% (three of 148 hips) in patients without neuromuscular disease.<sup>8</sup> 360 notes that numbers are small and that this is a Level III, therapeutic study. However, the data do not appear to show that dislocation of a bipolar hemiarthroplasty is significantly greater in patients with neuromuscular disease. The authors do stress that careful operative technique should be used, such as a posterior soft-tissue repair, in order to decrease the risk of post-operative dislocation. They conclude that bipolar hemiarthroplasty is a reasonable treatment option.

## The high risk of secondary hemiarthroplasty

■ Staying with hemiarthroplasty, here is an interesting paper from **Stockholm (Sweden)**, in which the authors analysed the re-operation and dislocation rates for Exeter hemiarthroplasties inserted for a fractured femoral neck. They studied 830 consecutive Exeter hemiarthroplasties (427 unipolar and 403 bipolar), performed either as a primary operation for a displaced fracture of the femoral neck or as a secondary procedure after failed internal fixation of a fracture of the femoral neck. Cox regression analyses were performed to evaluate factors associated with re-operation and prosthetic dislocation. Age, gender, the surgeon's experience, indication for surgery (primary or secondary) and type of hemiarthroplasty (uni- or bipolar) were tested as independent variables. The results showed that the prosthetic design (uni- or bipolar) had no influence on the risk for re-operation or dislocation, nor had the age, gender or the surgeon's experience. However, the secondary hemiarthroplasties were associated with a significantly increased risk for re-operation or dislocation compared with the primary hemiarthroplasties.<sup>9</sup> 360 notes and agrees with the authors' final conclusion, that special attention is required to re-

duce the risk of prosthesis dislocation and re-operation after a secondary hemiarthroplasty.

## Maybe we do not have to repair the labrum after all?

■ Much is presently being written, and said, to support labral repair at hip arthroscopic surgery so anything that might take a contrarian view immediately grasps 360's interest. A single-author paper from **Royal Oak (USA)** has looked further into the matter of labral repair and labral debridement. The author notes that the current rationale for labral repair is based on restoring the suction-seal function and clinical reports suggesting improved clinical outcome scores when acetabular rim trimming is accompanied by labral repair. However, it is unclear whether available scientific evidence supports routine labral repair. The questions raised in this review were: 1) does labral repair restore the normal histological structure, tissue permeability, hip hydrodynamics, load transfer, and *in vivo* kinematics; and 2) does labral repair favourably alter the natural course of femoroacetabular impingement (FAI) treatment or age-related degeneration of the acetabular labrum? The author thus undertook an electronic literature search and identified 355 abstracts, selecting 52 for full-text review, which described information about pertinent aspects

of labral formation, development, degeneration, biomechanics, and the clinical results of labral repair or resection. Several clinical studies supported labral repair when performed in conjunction with acetabular rim trimming. However, there were little data to support or refute the use of routine labral repair for all patients with symptomatic labral damage associated with FAI. It is simply not known whether or how labral repair affects the natural course of the condition. Consequently, and based on the current understanding of labral degenerative changes associated with mechanical hip abnormalities, the low biological likelihood of restoring normal tissue characteristics, and mechanical data suggesting minimal consequence from small labral resections, routine labral repair over labral debridement is not supported by this paper.<sup>10</sup> At 360, we suspect much debate will follow from the supporters of labral repair.

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