ROUNDUP360

Knee

The torn ACL: single- or double-bundle reconstruction?

■ The debate about single-bundle and double-bundle reconstruction of the anterior cruciate ligament (ACL) seems to have raged for quite some time, so a paper from **Ljubljana (Slovenia)** is well placed. This was a prospective, randomised study of three techniques – conventional (transtibial) single-bundle, anatomical single-bundle and anatomical double-bundle reconstruction. There were 281 patients with a mean follow-up of 51.2 months. With respect to anteroposterior and rotational stability, the anatomical double-bundle technique was better than the anatomical single-bundle method, which, in turn, was better than the conventional single-bundle technique.[1] However, and *360* finds this to be fascinating, the subjective scores using the International Knee Documentation Committee (IKDC) form were not significantly different. That is, what we as surgeons perceive as success is not necessarily the same as a patient's view. How many times have we heard that?

ACL reconstruction – patellar or hamstring tendon?

■ The tissue to be used for an ACL reconstruction is also widely discussed, so a Cochrane database intervention review from **Calgary** and **Toronto (Canada)** is valuable. The review compared the outcomes of ACL reconstruction using patellar tendon *versus* hamstring tendon autograft in ACL-deficient patients. There were sufficient data to gather information for 1597 young to middle-aged adults although many trials were at high risk of bias because of inadequate methods of randomisation, lack of blinding and incomplete assessment of outcome. Pooled data for primary outcomes, reported in a minority of trials, showed no statistically significant differences between the two graft choices for functional assessment (single-leg hop test), return to activity, Tegner and Lysholm scores, and subjective measures of outcome. There were also no differences found between the two interventions for re-rupture or IKDC scores. Additionally, there were inadequate long-term results to allow a satisfactory assessment of the risks of developing osteoarthritis. *360* must thus agree with the authors, that there is insufficient evidence to draw any real conclusions on differences between the two grafts for long-term functional outcome. Although patellar tendon reconstructions are more likely to result in statically stable knees, they are also associated with more anterior knee problems.[2]

Distal femoral morphology increases the risk of ACL rupture

■ The morphology of the distal femur can vary quite significantly but it is not known how this might influence injury to the ACL. A paper from **Pittsburgh (USA)** has looked into this with a level III study. Three-dimensional CT scans of the contralateral healthy femur were performed in 38 unilateral soft-tissue injured patients – 26 had an ACL injury, seven a posterior cruciate injury and five a medial meniscal tear. The condyle offset was calculated as the distance between the transcondylar axis and the anatomical axis of the femur. A condyle offset ratio was then calculated by dividing the condyle offset by the condyle radius. A larger condyle offset ratio was found in women than men. Meanwhile, also in women, the ACL-injured group had a significantly larger condyle offset ratio than those without an ACL tear. No such difference was found in men.[3] *360* feels that the condyle offset ratio may well be worth measuring, particularly in women, as it can herald an increased risk of rupturing an ACL.

Warm-ups before exercise

■ Do you remember those tedious warm-up sessions that teachers and coaches always insisted were necessary when you were playing sport at school? Well, *360* must now eat humble pie; our coaches were right all along. Furthermore, the nature of the warm-up seems key. Researchers from **Chicago (USA)** wished to determine the effectiveness of coach-led warm-up on reducing lower extremity injuries in female athletes. They were not looking solely at the knee. Public high schools were used for a randomised controlled trial of 1558 athletes, coaches being trained to implement a 20-minute neuromuscular warm-up before exercise. Meanwhile control coaches used their usual warm-up. Pleasingly, it appears that coach-led neuromuscular warm-ups reduced non-contact lower limb injuries in these female high-school athletes, with lower occurrences of non-contact ACL injuries, non-contact knee sprains, as well as non-contact ankle injuries.[4]

Glucosamine and tibiofemoral osteoarthritis

■ Glucosamine appears to be very widely consumed for degenerative disease globally. *360* has discovered that they even give it to horses. For a big horse the dosage can be five times that for the human. Yet what is the evidence that it does any good – in humans, that is? Researchers from **Copenhagen (Denmark)** undertook a double-blinded, randomised, controlled trial of 36 patients with bilateral tibiofemoral osteoarthritis. Patients were randomly assigned to treatment with ibuprofen, glucosamine or a placebo during a 12-week course of quadriceps muscle strength training. Quadriceps muscle cross-sectional area and strength were then measured. The findings? There was no improvement in muscle mass in any of the groups but there was an improvement in muscle strength when compared with placebo treatment. However, this benefit did not appear sufficiently large to justify taking either ibuprofen or glucosamine.[5] So, perhaps it is still back to the drawing board with glucosamine, thinks *360*, certainly for humans. We will leave the view on horses to the experts.

Sensitisation and sporting tendinopathy

There is a high prevalence of tendinopathies in sports although their aetiology is not well understood. In addition, little is known about whether somatosensory changes in the nervous system contribute to the pain a patient with a tendinopathy might feel. Could sensitisation have a role? Workers from **Groningen (The Netherlands)** have undertaken a patient-controlled study in which they used a protocol developed by the German Research Network on Neuropathic Pain. This protocol comprises seven different tests that measure 13 somatosensory parameters and is a gold standard in the measurement of somatosensory function. The researchers looked at 12 athletes with clinically diagnosed chronic patellar tendinopathy that had been present for a mean of 30 months; 20 controls were also included in the study. In two of the 13 parameters, namely Mechanical Pain Threshold and Vibration Disappearance Threshold, injured athletes were significantly more sensitive for the applied stimuli. However, no athlete had evidence of Dynamic Mechanical Allodynia. From this explorative study, the authors have concluded that sensitisation may play a prominent role in the pain of patellar tendinopathy during and after sports activity in patients with this sometimes complex condition.[6] How to resolve it? The authors do not say.

Pain relief after TKR

Pain relief after total knee replacement (TKR) is a constant challenge to the arthroplasty surgical team. Indeed, a very good review of this has recently appeared from the USA and Canada.[7] However, an interesting trial has also been reported from **Daejeon (Korea)**, where researchers undertook a prospective, randomised, double-blinded trial to compare the analgesic efficacy and functional outcomes for 30 patients who had received a continuous femoral nerve block after TKR for three days. These were stood alongside 33 patients who received the same technique for seven days after TKR. The results? The study group, who received the seven-day block, showed superior analgesia and higher patient satisfaction during their hospital stay than those who received the three-day block.[8] It appears, and *360* agrees, that despite the additional time, effort and cost to place and manage continuous femoral nerve catheters, a seven-day continuous femoral nerve block can be recommended as an effective and safe analgesic strategy after TKR. How that would sit with hospital management in many countries, where *360* sometimes thinks the administration encourages patients to be discharged almost before they have been admitted, is an entirely different matter.

Long-term results of the Genesis I

Long-term follow-up results are now a frequent inquiry from preoperative patients, so a report on the results of the posterior cruciate ligament (PCL)-retaining Genesis I TKR from **Thessaloniki (Greece)** is helpful. The researchers analysed the data from 345 patients with 393 primary TKRs with a minimum follow-up of ten years. Although there were early post-operative complications in 34 knees (8.6%) and a manipulation under anaesthetic required in six (1.5%), the overall survivorship was an impressive 96.7%. This was despite non-progressive radiolucent lines being seen at the tibial bone-cement interface in 101 knees (26%).[9] These are good results, thinks *360*, as TKR becomes an increasingly hot competitor for top spot against total hip replacement.

TKR – women recover faster than men

In our gender-aware society, although *360* realises we cannot speak for the entire planet, a paper from **Kiel (Germany)** was interesting. Who recovers quickest after TKR, women or men? Gentlemen, the ladies win hands down as this retrospective study shows, albeit with prospectively collected data. The authors studied 494 patients, comprising 353 women and 141 men. By three months after surgery the improvements in WOMAC scores were greater for women than men. This was despite the fact that preoperatively the women were older, had a lower mean physical function, higher mean pain scores and greater stiffness. However, by 12 months, both genders were the same.[10]

Accuracy of the orthopaedic eyeball

Accurate alignment of the components is a critical feature of TKR. Many use visual estimation, the so-called orthopaedic eyeball, while a perhaps increasing number are turning to computer navigation. But how good is the orthopaedic eyeball? Surgeons from **Mumbai (India)** have looked at this by asking orthopaedic surgeons who were attending a national conference to place a synthetic bone model of the knee in six positions in the coronal and sagittal planes. These were simultaneously quantified and recorded by a computer navigation system. In the sagittal plane, 44%, 54% and 60% of the surgeons deviated by more than 5° when positioning the knee in 0°, 10° and 90° of flexion, respectively. In the coronal plane, 15%, 12% and 8% of the surgeons deviated by more than 5° when positioning the knee in 0° varus/valgus, 5° varus and 5° valgus, respectively. Only 25% of the surgeons could position the knee both within 3° of neutral varus/valgus and within 5° of neutral flexion. Accuracy of visual estimation was no different when surgeons were compared based on time since residency or experience with TKR. It thus appears what many have often suspected, that visual estimation of knee alignment in both the sagittal and coronal planes is prone to error and may lead to inaccurate limb alignment during TKR.[11] Oh dear, thinks *360*, more expense looms and more management grief, if we are to buy that computer navigation system.

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