



Editorial



Unicompartmental knee replacement (UKR) accounts for approximately 9% of all knee arthroplasties in the UK [1] and has been shown to have a superior functional outcome to that of total knee replacement (TKR) [2]. However, cynics of the UKR concept argue they have higher revision rates than TKR. Nonetheless, revision of UKR to TKR is comparatively easier than revision of TKR to a substantive revision prosthesis. In this issue, Jonas et al. [3] compared the functional outcome of patients who have undergone revision of UKR to TKR (with a well-defined aseptic cause) with that of a matched cohort who underwent primary TKR and found no significant difference between the two groups. A UKR is a good procedure for providing pain relief of arthritic pain and forestalling the time point of undergoing a substantive revision knee prosthesis as a primary TKR can still be used as an intermediary procedure in the majority of cases. This concept is particularly useful when addressing the young adult knee. The cause of UKR revision can be component malalignment and therefore accurate surgical technique is important. In this issue, Asada et al. [4] measured joint line obliquity in native osteoarthritic knees and compared it to that of the tibial component following UKR. They advocated implanting the tibial component in approximately 5 degrees of varus relative to the tibial mechanical axis to maintain joint-line parallelism. The tibial cut of bone preparation of a UKR is arguably the most important as other aspects of the operation (i.e. the distal femoral cut) are referenced off and influenced by the initial tibial cut in most prosthetic designs. The vertical tibial cut is often neutral in orientation for medial UKR's but should be more externally rotated for lateral UKR's to account for the screw home mechanism of the native knee joint biomechanics. In this issue, Kamenaga et al. [5] investigated how coverage of the tibial component changes when the vertical tibial cut is rotated in the Oxford mobile-bearing UKR. They used pre-operative computed tomography (CT) scanning to calculate the surface area following different degrees of internal and external vertical tibial cuts. Internally rotated cuts resulted in larger surface areas, while externally rotated cuts had the contrary effect and concluded that rotational malalignment of tibial vertical cuts can significantly affect tibial coverage.

Much research is directed at improving the longevity and survivorship of TKR's to mitigate the need for revision surgery within the lifetime of the recipient. In patients with widespread degenerative disease affecting more than one compartment of the knee a UKR would not suffice and so a TKR may be the only choice. Improving outcomes and longevity is particularly pertinent in younger patients undergoing TKR. Tribology is the science of interacting surfaces in relative motion and includes the study of friction, wear, lubrication, and the design of bearings. Most conventional TKR bearing surfaces include a cobalt chromium femoral component articulating with a polyethylene tibial insert backed with a titanium alloy tibial tray. Aseptic loosening due to osteolysis from polyethylene wear remains the leading cause of revision [1]. In this issue, Papasoulis et al. [6] present their data of 245 patients who underwent a Genesis II TKR with an oxidized zirconium (Oxinium) femoral component articulating with an ultra-high molecular weight polyethylene insert. Survivorship analysis at 15 years showed a success rate of 98.4% with revision for aseptic loosening as an end point and 95.6% with revision for any reason as an end point. There was a significant improvement in all clinical outcome scores and a patient satisfaction rate of 90.1% which is higher than the commonly quoted 80% for most TKR prostheses.

The choice of thrombo-prophylaxis has been the topic of much debate and contention in the world of lower limb arthroplasty. Industry has bared a heavy influence as has the input of medical physicians into the development of these guidelines which have met with a mixed response from the orthopaedic community. The National Institute for Health and Care Excellence (NICE) updated their guidelines of chemical thrombo-prophylaxis [7] in March 2018. It includes the choice of either aspirin, low molecular weight heparin (LMWH) or factor Xa inhibitors (i.e. Rivaroxaban). This latest update has met with a more balanced response from Orthopaedic surgeons. In this issue, Richardson et al. [8] analysed data from a national health insurance database in the USA comparing the different pharmacologic prophylaxis regimens and the rates of venous thrombo-embolism (VTE). They found a decreased risk of VTE with LMWH and factor Xa inhibitors as compared to aspirin but with higher rates of bleeding-associated complications. They conclude that an

optimal balance of expected risks and benefits should be assessed for each individual patient and in turn used to guide the choice of thrombo-prophylaxis.

References

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Oday Al-Dadah
Caroline Hing
Editor in Chief