Debate is healthy

MORE DATA ARE NEEDED

We cover a number of areas of controversy this month – all are undoubtedly in need of more studies and more data. These are fascinating times for musculoskeletal researchers as we look to raise the standard of research in our specialty and answer some important questions.

David Dalury\(^1\) espouses the potential advantages of cementless knee arthroplasty. In the hip, the move towards cementless fixation has evolved rapidly, and has led to excellent results into the second decade with modern implants, even in younger active patients.\(^2,3\) In the knee, the case for cementless fixation may be much more difficult to prove. This particularly pertains to failures on the tibial and patellar sides, with the first generation of cementless implants and techniques.\(^4,5\) Newer techniques, including the use of navigation and robotics, novel surface finishes and an improved understanding of the operative procedure, may well make cementless knee arthroplasty the standard in future.\(^6,7\) At present, however, there are very limited data to justify its routine use.

Nevertheless, we must continue to explore cementless arthroplasty. The problem group is the younger, heavier more active patients who have poor survivorship and unmet expectations at present. There is little doubt that we are seeing more and more of that cohort requiring knee arthroplasty.

There are a number of ongoing registered studies in this area, and the outcomes will be anticipated with interest. In order for us to change from cemented to cementless knee arthroplasty, we will need to confirm, in a methodologically sound way, that there are sustainable advantages. These benefits may be economic in terms of quicker procedures. They may mean a quicker recovery for our patients, or there could be a reduction in medium- or long-term failures. At present, the data show higher failure rates for cementless implants in some studies, and equivalence in others. Level one studies will be needed. Short-term evaluation with modalities, such as RSA, are expected to show different patterns for cemented and cementless implants over the first couple of years, and will therefore provide reassurance, but will need to be backed up by longer-term results. The generalisability of specialist centre and designer/inventor centre findings will need to be corroborated in multi-centre cohorts, and will, ultimately, be at the mercy of registries.

On a separate front, Elliot et al\(^8\) present a multi-surgeon unified theory of bone healing and nonunion. It is worth considering this annotation in great detail, as it is designed to illustrate current thinking and challenge previous dogma in terms of fracture healing. Many of you who have a deep interest in basic bone research may take issue with various facets of their thinking, but the purpose of publishing this paper is to put forward a modern hypothesis that others can debate and test. Many will feel strongly about the relative roles of mechanical and biological factors in fracture healing – we look forward to your letters and challenges.

We have also considered the thorny issue of generic replica implants in orthopaedic surgery.\(^9\) This is an area that has generated great interest in the United Kingdom, where cost cutting is currently looming large on the agenda. The immediate cost savings provided by cheap implants are also considered a priority in many other countries. The reality, however, is that we must never lose sight of the needs of our patients, and the importance of offering the best possible proven outcome for each individual at the time of their procedure. Short-term savings would be irrelevant, should such implants have inferior functional outcomes, or higher failure or revision rates. Given the recent history of failure of a variety of new hip arthroplasty concepts, including the designs and bearings, it is important that any change in our practice is carefully introduced, critically evaluated, and is not disseminated widely until there is good evidence of its efficacy in the medium to longer-term. We cannot assume that generic implants will be identical to those which they are intended to replicate, and we need to introduce them gradually to ensure that they are safe.

The hip section highlights current controversies with metal-on-metal, ceramic-on-ceramic and mixing and matching, all highlighted by excellent papers. The long-term outcome of hip arthroplasty still depends on the application of the appropriate bearings. The outstanding performance of some bearings in vitro have in the main not translated in vivo, partly because of the difficulties we have had in understanding the
optimal position for the components in each patient, and in reproducing that in the operating theatre. The concept of the safe zone is an interesting one, but one that has failed the test of time. The quest is on now to determine the optimal position for acetabular and femoral orientation in each patient. Pierron et al.\textsuperscript{10} have identified a cohort of patients with squeaking ceramic bearings, which has been attributed to edge-loading. This reinforces the importance of looking at pelvic tilt and suggests that more work needs to be carried out on an individualised basis to identify which patients require further assessment prior to surgery, and what sort of assessment is required to translate to good orientation in the operating theatre. If the ideal target can be identified, our outcomes are likely to improve.

The mixing and matching of components has been an area of interest. While it seems logical in some settings, for example, when using a femoral head of known diameter against a polyethylene component of similar size, it is illogical in other situations, such as the use of a femoral head from one manufacturer and the taper of another. This leads to a fascinating debate in other scenarios when ceramic components, made from the same basic manufacturing process, but released by two different companies, should not be mated. Interestingly, John Skinner’s group\textsuperscript{11} have looked at their retrievals comparing metal-on-metal couples that were from the same company and those that were not. The study reassures us in relation to patients who already have these implants in situ, however, this should not be used to corroborate the idea that the practice should be continued.

Amstutz and Le Dufl’s study\textsuperscript{12} flies in the face of current thinking. They report excellent results for resurfacing in patients with osteonecrosis. Such remarkable results may be possible in specialist hands, but these results have not proved generalisable, and appear to be restricted to selected patients and centres at present. The unfortunate withdrawal of certain sizes in 2015, in spite of their good results in expert hands, may well prove the ‘death knell’ of this type of arthroplasty.

The role of arthroscopy in degenerative knee disease has aroused recent discussion and the Editor has received several irate letters from otherwise respectable and respected colleagues since we published Steve Bollen’s personal opinion on the matter.\textsuperscript{13} Lamplot and Brophy’s review of the literature\textsuperscript{14} gives a balanced but practical view of the role of arthroscopy for degenerate meniscal tears. I have attended some meetings recently where it has been difficult to find a middle ground between the righteous supporters of the good level one studies that have been performed, and the busy clinicians who see a role for arthroscopy in selected patients such as those with incarcerated meniscal polyps. This debate is likely to continue, and more research is required in order to understand the cause of symptoms in these cases more clearly, and in order to define that subset of patients who benefit from arthroscopic meniscectomy, as opposed to those who do not, or may potentially deteriorate, as a result of surgery. There is an opportunity for those at the cutting edge to undertake prospective randomised studies in patients with mechanical symptoms using optimised physiotherapy and exercise as the controls. Equipoise may prove difficult and many patients may refuse to participate or cross over. However, such studies are needed.

The paper from Boonen et al.\textsuperscript{15} seems to add another nail to the coffin of patient-matched positioning guides. Many studies now seem to suggest that these do not improve outcomes and that our research should focus on different areas.\textsuperscript{16,17}

Recent publications on osseointegrated prostheses after amputation are backed up by the work carried out in New South Wales with an interesting and more accelerated protocol.\textsuperscript{18,19} This is an area where funding for more basic science and clinical work should be available.

Finally, on the back of my visit to the Japanese Orthopaedic association, where the hospitality was outstanding and the standard of research was excellent, I would like to highlight two excellent Japanese papers.\textsuperscript{20,21} Tatebe et al.\textsuperscript{20} work on the impact of depression and inflammatory factors on outcomes in chronic conditions of the wrist and hand probably represents the tip of an iceberg. Knee, spine and foot and ankle surgeons also recognise this in their practice. It is clear that we must maintain a holistic approach to our patients.