

# Top Ten Things Rheumatologists Should (And Might Not) Know About Hip and Knee Arthroplasty

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**H**ip and knee arthroplasty are extremely successful surgical procedures for end-stage arthritis with predictable improvements in pain relief, mobility, and overall quality of life. Recent innovations have had mixed results, resulting in the need for some clarity in the discussion of what constitutes current state-of-the-art procedures for arthroplasty. Patients sent from our rheumatology colleagues for arthroplasty are a unique population that often requires special consideration. The following list addresses these issues.

- 1. The incidence of hip and knee arthroplasty** for patients with rheumatoid arthritis (RA) has fallen dramatically over the last two decades, likely as a result of better medical management.<sup>1</sup> Patients with end-stage and joint mutilating RA are now rarely seen in the operative theatre. In contradistinction, the incidence of arthroplasty for osteoarthritis (OA) over the same time period has increased severalfold.
- 2. Patients with inflammatory arthropathies are at an increased risk** for periprosthetic joint infection after arthroplasty. Disease-modifying immunosuppressive agents are generally stopped in a “wash-out” fashion in an effort to reduce infection risk. Recent evidence suggests that such practice may not in fact lower the infection risk. The outcomes of an infected arthroplasty can be devastating, and unfortunately, the incidence of joint infection is increasing internationally.<sup>2</sup>
- 3. Cemented fixation** of arthroplasty components to host bone continues to demonstrate superior survivorship in patients with inflammatory arthropathies, despite advances in uncemented fixation.<sup>3</sup> Using cement provides immediate fixation in vulnerable bone and allows for the addition of antibiotics that elute into the joint over time, reducing the incidence of infection.
- 4. Long-term revision rates** for hip and knee replacement are similar or slightly higher in patients with RA compared to those with OA. Increased risk for failure associated with ongoing inflammatory processes and infections are balanced by, in general, lower body mass and reduced activity levels.
- 5. Metal-on-metal total hip replacements (THR)** have been a failure and are largely being abandoned. Several designs of such implants have led to high levels of serum and urine cobalt and chromium that can result in local toxic effects, including periarticular muscle necrosis.<sup>4</sup> Such complications can be profound in scope. Metal-on-metal THR should not be used in patients with inflammatory arthropathies.
- 6. Resurfacing arthroplasty** of the hip also uses a metal-on-metal bearing, but unlike a total hip replacement, the femoral head and neck are retained and milled to accept a capping prosthesis. Some types of resurfacing arthroplasty have also had associated metal ion issues and, at best, these prostheses match the outcome of conventional hip replacement in males with OA. The host bone needs to be strong and vital to support the femoral prosthesis, so resurfacing arthroplasty should not be used in the face of inflammatory arthropathies.
- 7. Ceramic-on-ceramic bearings** in total hip arthroplasty adds significant additional cost to the procedure but national registry data from many countries fails to show superiority compared to the gold standard of metal femoral heads articulating on cross-linked polyethylene. Ceramic bearings can fracture, necessitating the need for complex revision. Some series on ceramic bearings report an incidence of “squeaking” of the bearing with activity in more than 10% of patients.<sup>5</sup>

**8. Resurfacing of the patella** in total knee arthroplasty with a plastic button to articulate against the metal femoral component is generally recommended in inflammatory arthropathies.<sup>6</sup> An unresurfaced patella increases rates of anterior knee pain and decreases rates of overall satisfaction, but decreases the rates of long-term complications due to failure of the supporting patellar bone stock and subsequent fractures. The situation is complicated by the fact that most patients with inflammatory arthropathies have the posterior cruciate ligament resected and substituted for at the time of knee arthroplasty, which increases the sagittal shear on the patella-femoral joint.

**9. Computer-assisted total knee arthroplasty** has been shown to reduce outliers in component positioning and overall limb alignment, and has subsequently been shown to improve survivorship.<sup>7</sup> It is likely that computer-assisted surgery will continue to evolve into robotic surgery, with more future procedures being allocated to robotic preparation. The role of the future surgeon will be to instruct the patient-specific implantation plan and then manage the robotic systems, much like occurs in aviation.

**10. National joint replacement registries** have improved the outcomes of joint replacements around the world, disseminating implant-specific results to surgeons both nationally and internationally.<sup>8</sup> Because the incidence of failure, especially in the short term, is low in arthroplasty, large numbers of patients are required to be studied over decades in order to provide meaningful insight. Randomized clinical trials are generally not practical for such outcome metrics. The Canadian Joint Replacement Registry (CJRR), under the umbrella of the Canadian Institute of Health Information (CIHI), oversees the

registration of implanted hip and knee prostheses in Canada and is part of the International Society of Arthroplasty Registries (ISAR).

#### References

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## UPDATE: STAND UP AND BE COUNTED!

The CRA launched a national rheumatology workforce survey called **Stand Up and Be Counted** in March 2015. The objective of the survey is to determine the current workforce capacity for rheumatology care in Canada and to map the geographic distribution of rheumatologists. This work will help us estimate our current workforce capacity to care for our patients, plan for the future, inform model of care development, and support advocacy efforts for our specialty.

To date, more than 325 rheumatologists have responded to the survey. Your participation is critical in ensuring the success of this work. It is not too late to **Stand Up and Be Counted!** The survey will remain open until August 2015. Please contact [claire@rheum.ca](mailto:claire@rheum.ca) to receive your link to complete the survey.