CORR Insights

CORR Insights®: How Do Knee Implants Perform Past the Second Decade? Nineteen-to 25-year Followup of the Press-fit Condylar Design TKA

Ville Remes MD, PhD

Where Are We Now?

In the last three decades, TKA has established its position as the gold standard surgical treatment for severe, symptomatic knee osteoarthritis

This CORR Insights® is a commentary on the article “How Do Knee Implants Perform Past the Second Decade? Nineteen- to 25-year Followup of the Press-fit Condylar Design TKA” by Colwell Jr. and colleagues available at: DOI: [10.1007/s11999-014-3792-6](https://doi.org/10.1007/s11999-014-3792-6).

The author certifies that he, or any member of his immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research®* editors and board members are on file with the publication and can be viewed on request.

The opinions expressed are those of the writers, and do not reflect the opinion or policy of *CORR®* or the Association of Bone and Joint Surgeons®.

This *CORR Insights®* comment refers to the article available at DOI: [10.1007/s11999-014-3792-6](https://doi.org/10.1007/s11999-014-3792-6).

(OA). Although TKA is common procedure, published studies with long-term clinical and radiological followup are few [2, 6]. In register studies, there has been a constant reduction in risk of revision over time [8]. For example, a patient who had an operation in 2000 has a lower risk for revision than the patient who had a similar operation in 1990 with a similar followup time. Challenges with TKA — perhaps even more than THA — are more related to function and patient satisfaction [10]. The number of TKAs are increasing in developed countries, especially among young patients with primary knee OA [5, 7]. Therefore, there is a clear need for publications with long-term clinical and radiological followup.

Where Do We Need To Go?

In the current study, Papil et al. report the results of the Press-fit Condylar

V. Remes MD, PhD (✉)
Pihlajalinna Group, Raumanie 1 a,
Helsinki 00330, Finland
e-mail: ville.remes@helsinki.fi

TKA system (DePuy Orthopaedics, Warsaw, IN, USA) in 160 TKAs performed between 1986 and 1989. The authors noted an 87% survivorship for revision for any reason (95% CI, 80%–92%), and a 98% Kaplan–Meier survivorship for revision for aseptic loosening (95% CI, 93%–99%) at the mean 20-year followup (range, 19–25 years). The Knee Society Score did not seem to provide useful information regarding long-term outcome in older patients, since, as expected, the score decreased over time as occurs with normal aging. Also, there was substantial loss to radiographic followup in this report, and more detailed radiological analysis would have provided useful information on polyethylene wear and subsequent osteolysis. In their study, Papil et al. found aseptic loosening to be uncommon, justifying the continued use of cemented TKAs. Additionally, the number of revisions from polyethylene wear was also low. Currently, use of new designs such as uncemented TKA implants and cross-linked polyethylene inserts is increasing

CORR Insights

[1, 8]. However, polyethylene wear and aseptic loosening seem to be uncommon. On the other hand, there is a need to improve functional outcome after TKA. Moving forward, we must provide more scientific data to support the use of new TKA innovations.

How Do We Get There?

Further prospective, randomized clinical studies are needed to compare uncemented and cemented TKA implants with similar polyethylene characteristics. In addition, there is a need for prospective randomized clinical studies comparing conventional polyethylene inserts with crosslinked polyethylene liners used in same implant in order to avoid bias caused differences in the implant geometry. Long-term studies providing data on patient reported outcome measures such as the WOMAC [4], Oxford Knee Score [3], and Short Form-12 (SF-12) [9] would also be useful. In the future, we should focus on maximizing knee function and patient satisfaction by

improving the function of TKA implants.

References

1. Australian Orthopedic Association. National joint replacements registry: Annual report 2013. Available at: <https://aoanjrr.dmac.adelaide.edu.au/annual-reports-2013>. Accessed July 14, 2014.
2. Callaghan JJ, Beckert MW, Hennessey DW, Goetz DD, Kelley SS. Durability of a cruciate-retaining TKA with modular tibial trays at 20 years. *Clin Orthop Relat Res*. 2013; 471:109–117.
3. Dawson J, Fitzpatrick R, Murray D, Carr A. Questionnaire on the perceptions of patients about total knee replacement. *J Bone Joint Surg Br*. 1998;80-B:63–69.
4. Hawker G, Melfi C, Paul J, Green R, Bombardier C. Comparison of a generic (SF-36) and a disease specific (WOMAC) (Western Ontario and McMaster Universities Osteoarthritis Index) instrument in the measurement of outcomes after knee replacement surgery. *J Rheumatol*. 1995;22:1193–1196.
5. Leskinen J, Eskelinen A, Huhtala H, Paavolainen P, Remes V. The incidence of knee arthroplasty for primary osteoarthritis grows rapidly among baby boomers: a population-based study in Finland. *Arthritis Rheum*. 2012;64:423–428.
6. Meding JB, Meding LK, Ritter MA, Keating EM. Pain relief and functional improvement remain 20 years after knee arthroplasty. *Clin Orthop Relat Res*. 2012;470:144–9.
7. Singh JA, Vessely MB, Harmsen WS, Schleck CD, Melton LJ 3rd, Kurland RL, Berry DJ. A population-based study of trends in the use of total hip and total knee arthroplasty, 1969–2008. *Mayo Clin Proc*. 2010;85: 898–904.
8. The Swedish Knee Arthroplasty Register: Annual Report 2013. Available at: <http://www.myknee.se/en/>. Accessed July 14, 2014.
9. Ware J Jr, Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. *Med Care*. 1996;34:220–233.
10. Weiss JM, Noble PC, Conditt MA, Kohl HW, Roberts S, Cook KF, Gordon MJ, Mathis KB. What functional activities are important to patients with knee replacements? *Clin Orthop Relat Res*. 2002;404: 172–188.