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CONTROVERSIAL ISSUES & CURRENT CONCEPTS

The survivorship of unicompartmental knee arthroplasty is poorer compared with total knee arthroplasty

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Knee replacements are effective for the treatment of severe osteoarthritis.[1] The interest in unicompartmental knee arthroplasty (UKA) has increased again in the recent years.[2,3] Application of UKA via a smaller incision has some advantages such as less pain, quicker recovery, and shorter hospital stay. It was also reported that improved functional outcomes, range of motion, and return to activity were found after UKA in early follow-up.[2,3]

In a multicenter retrospective cohort study, time period between stopping work and returning to work following UKA and total knee arthroplasty (TKA) was assessed with Work, Osteoarthritis, or joint-Replacement Questionnaire, Work Ability Index, and satisfaction with work ability. More UKA patients returned to work within three months (73% versus 48%) ($p<0.01$). However, in two years, return to work, WORQ, WAI, and satisfaction scores were similar in both UKA and TKA.[4]

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Furthermore, UKA survivorship is lower than TKA survivorship in 27-year Finnish registry study.[5] From this cohort, the authors calculated Kaplan-Meier survivorship for revision performed for any reason. It was 89.4% at five years, 80.6% at 10 years, and 69.6% at 15 years for UKAs; the corresponding rates for TKAs were 96.3%, 93.3%, and 88.7%, respectively. The survivorship of UKA is poorer compared with TKA in all arthroplasty register reports.[6-10]

In our studies, we also found that the revision rates of UKAs were higher than those of TKAs rates as reported in the literature.[11,12]

There are several meta-analyses and systematic reviews in the literature regarding this issue. Sun and Su[13] concluded that conversion of UKA to TKA is associated with poorer clinical outcomes than primary TKA. They also reported that conversion of UKA to TKA is more complicated than performing primary TKA.

Lee et al.[14] found that the revised UKA to TKA had longer operation times resulting from additional procedures such as bone grafting and use of stems and augments. They also reported worse postoperative clinical outcomes based on the Western Ontario and McMaster Universities Osteoarthritis Index and Oxford Knee Score than the primary TKA.

In their meta-analysis, Zuo et al.[15] reported that compared with primary TKAs, TKAs revised from UKAs had inferior clinical outcomes.

Moreover, Wilson et al.[16] reported that TKA and UKA are both viable options for the treatment of isolated unicompartmental osteoarthritis. However, the risk of revision surgery was lower for TKA.

In their 8-to-17 year follow-up study, Järvenpää et al.[17] suggested that UKA conversion to TKA is associated with poorer clinical outcomes compared to primary TKA.

Finally, in a recent study with systematic review and meta-analysis of case series and national registry reports with pooled registry data, Evans et al.[18] showed that approximately 82% of TKAs last 25 years and 70% of UKAs last 25 years.

Therefore, until we have convincing scientific data in terms of greater safety and efficacy for UKA, it should not be used in marketing by orthopedic surgeons.

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REFERENCES

1. Turan S, Bingöl O. Is tranexamic acid effective on hidden blood loss in patients during total knee arthroplasty? Jt Dis Relat Surg 2020;31:488-93.
2. Atik OŞ. Unikompartmental knee arthroplasty: Early results. Eklem Hastalik Cerrahisi 1990;2:10-1.
3. Kleeblad LJ, van der List JP, Zuiderbaan HA, Pearle AD. Larger range of motion and increased return to activity, but higher revision rates following unicompartmental versus total knee arthroplasty in patients under 65: a systematic review. Knee Surg Sports Traumatol Arthrosc 2018;26:1811-22.
4. Kievit AJ, Kuijer PPFM, de Haan LJ, Koenraadt KLM, Kerkhoffs GMMJ, Schafroth MU, et al. Patients return to work sooner after unicompartmental knee arthroplasty than after total knee arthroplasty. Knee Surg Sports Traumatol Arthrosc 2020;28:2905-16.
5. Niinimäki T, Eskelinen A, Mäkelä K, Ohtonen P, Puhto AP, Remes V. Unicompartmental knee arthroplasty survivorship is lower than TKA survivorship: a 27-year Finnish registry study. Clin Orthop Relat Res 2014;472:1496-501.
6. The Australian National Joint Replacement Registry. Annual Report 2012. Available at: https://aoanjrr.dmac.adelaide.edu.au/annual-reports-2012. [Accessed: August 12, 2013].
7. The National Joint Registry of England, Wales and Northern Ireland. 9th Annual Report 2012. Available at: http://www. njrcentre.org.uk/njrcentre/ Portals/0/ Documents/ England/Reports/9th_annual_report/ NJR%209th%20Annual%20Report%202012. [Accessed: September 22, 2013].
8. The New Zealand Joint Registry. Thirteen Year Report: January 1999 to December 2011. Available at: http://nzoa.org.nz/system/files/NJR%2013%20Year%20Report.pdf [Accessed: August 10,2013].
9. The Norwegian Arthroplasty Register. Annual Report 2011. Available at: http://nrlweb.ihelse.net/eng/Report_2010.pdf. [Accessed: August 10, 2013].
10. The Swedish Knee Arthroplasty Register. Annual Report 2012. Available at: http://www.knee.nko.se/english/online/uploadedFiles/117_SKAR_2012_Engl_1.0.pdf. [Accessed: August 10, 2013].
11. Atik OS. Unicompartmental or total knee arthroplasty?. Eklem Hastalik Cerrahisi 2011;22:118-9.
12. Sever GB, Cankuş C. The long-term results of cemented Oxford unicompartmental knee arthroplasty: A single-center experience. Eklem Hastalik Cerrahisi 2019;30:233-40.
13. Sun X, Su Z. A meta-analysis of unicompartmental knee arthroplasty revised to total knee arthroplasty versus primary total knee arthroplasty. J Orthop Surg Res 2018;13:158.
14. Lee JK, Kim HJ, Park JO, Yang JH. Inferior outcome of revision of unicompartmental knee arthroplasty to total knee arthroplasty compared with primary total knee arthroplasty: systematic review and meta-analysis. Knee Surg Sports Traumatol Arthrosc 2018;26:3403-18.
15. Zuo W, Ma J, Guo W, Zhang Q, Wang W, Liu Z. Comparison of the clinical outcomes of revision of failed UKAs to TKAs with primary TKAs: A systematic review and meta-analysis. Medicine (Baltimore) 2018;97:e13408.
16. Wilson HA, Middleton R, Abram SGF, Smith S, Alvand A, Jackson WF, et al. Patient relevant outcomes of unicompartmental versus total knee replacement: systematic review and meta-analysis. BMJ 2019;364:l352.
17. Järvenpää J, Kettunen J, Miettinen H, Kröger H. The clinical outcome of revision knee replacement after unicompartmental knee arthroplasty versus primary total knee arthroplasty: 8-17 years follow-up study of 49 patients. Int Orthop 2010;34:649-53.
18. Evans JT, Walker RW, Evans JP, Blom AW, Sayers A, Whitehouse MR. How long does a knee replacement last? A systematic review and meta-analysis of case series and national registry reports with more than 15 years of follow-up. Lancet 2019;393:655-63.