Joint Diseases and Related Surgery

Jt Dis Relat Surg
2024;35(2):468-469

REVIEW

Total ankle arthroplasty versus ankle fusion

Özgür Selim Uysal, MD[1], O. Şahap Atik, MD[2]

[1]Department of Orthopedics and Traumatology, Yüzüncü Yıl Hospital, Ankara, Türkiye
[2]President, Turkish Joint Diseases Foundation, Ankara, Türkiye

Despite the increasing numbers of ankle arthroplasties, there are limited studies on their survival and comparisons between different implants.[1]

Hip and knee arthroplasties are very successful surgical procedures and continue to evolve as we attempt new techniques and improve outcomes of the patients.[2,3]

Total ankle arthroplasty (TAA) is a surgical option for patients with arthritis of the ankle. This operation can relieve pain and maintain motion in the arthritic ankle joint and is an alternative to ankle fusion (AF) which can relieve pain but eliminates motion in the joint. Although it does not have the same long-term track record of hip or knee arthroplasties, shorter-term studies on ankle replacement look very promising.[4]

A link between frontal, axial leg alignment, and ankle joint line orientation (AJLO) can be demonstrated, indicating that a valgus leg alignment and relative femoral retrotorsion are associated with an increase of valgus AJLO in healthy subjects while placing their feet in a neutral position. Alteration of the frontal, or rotational profile after realignment surgery or by implant positioning may influence the AJLO, when the foot progression angle is kept constant.[5]

Existing literature on the superiority of patient-specific instrumentation (PSI) in TAA over standard referencing (SR) is limited. The PSI method did not show an advantage over SR in regard to positioning of the components or the duration of the surgery. The current study suggests that no initial advantage of PSI over SR is to be expected in standard TAA.[6]

The amount of correction of the subtalar joint differed depending on the ligament dissection of the subtalar joint and shape of the talar component.[7]

A meta-analysis showed no statistically significant difference between TAA and AF in clinical outcome, patient satisfaction, complications, and survival. This revealed that TAA and AF could appear to have similar results in these aspects.[8]

In another systematic review and meta-analysis, 37 comparative studies were included.[9] The TAA had advantages over AF in the short term due to better performance in terms of patient-reported outcome measures (PROMs), complications, and reoperation rates, but its complications become a disadvantage in the medium term. In the long term, AF seems to be favored due to lower complications and revision rates, although there is no difference in clinical scores.

In conclusion, TAA and AF tend to have better performance in some aspects. However, it is difficult to claim which is superior. Based on the current findings, there is no statistically significant difference between TAA and AF.

Received: January 29, 2024
Accepted: January 29, 2024
Published online: February 13, 2024

Correspondence: O. Şahap Atik, MD. Turkish Joint Diseases Foundation, Mustafa Kemal Mah., Dumlupınar Bul., 274/2, C2 Blok, Ofis 5, 06900 Çankaya, Ankara, Türkiye.

E-mail: satikmd@gmail.com

Doi: 10.52312/jdrs.2024.57921

Citation: Uysal ÖS, Atik OŞ. Total ankle arthroplasty versus ankle fusion. Jt Dis Relat Surg 2024;35(2):468-469. doi: 10.52312/jdrs.2024.57921.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: All authors contributed equally to the article.

Conflict of Interest: The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding: The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Jennison T, Ukoumunne O, Lamb S, Sharpe I, Goldberg AJ. How long do ankle arthroplasties last? Bone Joint J 2023;105-B:301-6. doi: 10.1302/0301-620X.105B3.BJJ-2022-0806.R1.
2. Atik OŞ. Does the use of robotic technology in hip arthroplasty provide superior clinical outcomes? Jt Dis Relat Surg 2022;33:253-4. doi: 10.52312/jdrs.2022.57904.
3. Narkbunnam R, Rojjananukulpong K, Ruangsomboon P, Chareancholvanich K, Pornrattanamaneewong C. The association between perception of patients and their actual ability to do floor activities after mobile-bearing unicompartmental knee arthroplasty: A prospective, cross-sectional study. Jt Dis Relat Surg 2023;34:245-52. doi: 10.52312/jdrs.2023.877.
4. Total ankle replacement surgery for arthritis. Available at: https://orthop.washington.edu/patient-care/articles/ankle/total-ankle-replacement-surgery-for-arthritis.html
5. Hodel S, Cavalcanti N, Fucentese S, Vlachopoulos L, Viehöfer A, Wirth S. The relationship between frontal, axial leg alignment, and ankle joint line orientation-a radiographic analysis of healthy subjects. Orthop Surg 2023;15:79-84. doi: 10.1111/os.13567.
6. Heisler L, Vach W, Katz G, Egelhof T, Knupp M. Patient-specific instrumentation vs standard referencing in total ankle arthroplasty: A comparison of the radiologic outcome. Foot Ankle Int 2022;43:741-9. doi: 10.1177/10711007221077100.
7. Fujimaki T, Kurokawa H, Ueno Y, Sasaki T, Pradana AS, Zainudin TNBT, et al. Assessment of changes in hindfoot alignment of total ankle arthroplasty for ankle osteoarthritis on weightbearing subtalar x-ray view. Foot Ankle Orthop 2023;8:24730114231205299. doi: 10.1177/24730114231205299.
8. Li Y, He J, Hu Y. Comparison of the efficiency and safety of total ankle replacement and ankle arthrodesis in the treatment of osteoarthritis: An updated systematic review and meta-analysis. Orthop Surg 2020;12:372-7. doi: 10.1111/os.12635.
9. Liu S, Wang Y, Zhang M, Wei P, Li Y, Wang T, et al. A comparative study of modern total ankle replacement and ankle arthrodesis for ankle osteoarthritis at different follow-up times: A systematic review and meta-analysis. Int Orthop 2023;47:1493-510. doi: 10.1007/s00264-023-05753-6.