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Intermediate and long-term outcomes of total ankle arthroplasty and ankle arthrodesis. A systematic review of the literature.

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BACKGROUND: The efficacy of total ankle replacement compared with that of ankle fusion continues to be one of the most debated topics in foot and ankle surgery. The purpose of this study was to determine whether there are sufficient objective cumulative data in the literature to compare the two procedures. A systematic review of the literature addressing the intermediate and long-term outcomes of interest in total ankle arthroplasty and ankle arthrodesis was performed.

METHODS: A comprehensive search of MEDLINE for all relevant articles published in English from January 1, 1990, to March 2005 was conducted. Additionally, relevant abstracts from the 2003 and 2004 annual proceedings of major orthopaedic meetings were eligible. Two reviewers evaluated each study to determine whether it was eligible for inclusion and collected the data of interest. Meta-analytic pooling of group results across studies was performed for the two procedures. The analysis of the outcomes focused on second-generation ankle implants.

RESULTS: The systematic review identified forty-nine primary studies, ten of which evaluated total ankle arthroplasty in a total of 852 patients and thirty-nine of which evaluated ankle arthrodesis in a total of 1262 patients. The mean AOFAS (American Orthopaedic Foot and Ankle Society) Ankle-Hindfoot Scale score was 78.2 points (95% confidence interval, 71.9 to 84.5) for the patients treated with total ankle arthroplasty and 75.6 points (95% confidence interval, 71.6 to 79.6) for those treated with arthrodesis. Meta-analytic mean results showed 38% of the patients treated with total ankle arthroplasty had an excellent result, 30.5% had a good result, 5.5% had a fair result, and 24% had a poor result. In the arthrodesis group, the corresponding values were 31%, 37%, 13%, and 13%. The five-year implant survival rate was 78% (95% confidence interval, 69.0% to 87.6%) and the ten-year survival rate was 77% (95% confidence interval, 63.3% to 90.8%). The revision rate following total ankle arthroplasty was 7% (95% confidence interval, 3.5% to 10.9%) with the primary reason for the revisions being loosening and/or subsidence (28%). The revision rate following ankle arthrodesis was 9% (95% confidence interval, 5.5% to 11.6%), with the main reason for the revisions being nonunion (65%). One percent of the patients who had undergone total ankle arthroplasty required a below-the-knee amputation compared with 5% in the ankle arthrodesis group.

CONCLUSIONS: On the basis of these findings, the intermediate outcome of total ankle arthroplasty appears to be similar to that of ankle arthrodesis; however, data were sparse. Comparative studies are needed to strengthen this conclusion.



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