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Implant Breakage after Shoulder Arthroplasty: A systematic review of worldwide arthroplasty registries and clinical data

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Purpose: Implant breakage after shoulder arthroplasty is a rare complication resulting in malfunction or loosening of the components requiring revision surgery. This correlates with a high burden for the patient and steadily increasing costs for the health care system. Specific data of implant breakage are available in detailed arthroplasty registries, but rarely described in published studies. The aim of this systematic review and meta-analysis was to point out the frequency of implant breakage after shoulder arthroplasty. We hypothesized that rates of implant breakage don t differ between registry datasets and clinical studies. Methods: The breakage rate per 100,000 observed component years was used to compare data from national arthroplasty registries with data from clinical studies, published in peer-reviewed journals. All relevant different types of shoulder prosthetics were analyzed and considered in this investigation. Results: Data of 5 registries and 13 studies were included. Rates of implant breakage after shoulder arthroplasty were reported with 0.06-0.86% in registries versus 0.01-6.65% in clinical studies. The breakage rate per 100,000 observed component years in clinical studies and registries was 10. Conclusion: Clinical studies revealed a similar incidence of implant failure compared to data of worldwide arthroplasty registries. These complications arise mainly due to breakage of implanted screws and glenosphere and there seems to be a direct correlation between loosening/disengagement and implant breakage. We believe that this analysis can help physicians to advise patients on potential risks after shoulder arthroplasty.