

Factors influencing periprosthetic femoral fracture risk

[Tobias Konow](#)¹, [Johanna Baetz](#)¹, [Oliver Melsheimer](#)², [Alexander Grimberg](#)^{2,3}, [Michael Morlock](#)¹
Affiliations

- PMID: **33789487**
- DOI: [10.1302/0301-620X.103B4.BJJ-2020-1046.R2](https://doi.org/10.1302/0301-620X.103B4.BJJ-2020-1046.R2)

Abstract

Aims: Periprosthetic femoral fractures (PPF) are a serious complication of total hip arthroplasty (THA) and are becoming an increasingly common indication for revision arthroplasty with the ageing population. This study aimed to identify potential risk factors for PPF based on an analysis of registry data.

Methods: Cases recorded with PPF as the primary indication for revision arthroplasty in the German Arthroplasty Registry (Endoprothesenregister Deutschland (EPRD)), as well as those classified as having a PPF according to the International Classification of Diseases (ICD) codes in patients' insurance records were identified from the complete datasets of 249,639 registered primary hip arthroplasties in the EPRD and included in the analysis.

Results: The incidence of PPFs was higher (24.6%; 1,483) than reported in EPRD annual reports listing PPF as the main reason for revision (10.9%; 654). The majority of fractures occurred intraoperatively and were directly related to the implantation process. Patients who were elderly, female, or had comorbidities were at higher risk of PPFs ($p < 0.001$). German hospitals with a surgical volume of < 300 primary procedures per year had a higher rate of PPFs ($p < 0.001$). The use of cemented and collared prostheses had a lower fracture risk PPF compared to uncemented and collarless components, respectively (both $p < 0.001$). Collared prostheses reduced the risk of PPF irrespective of the fixation method and hospital's surgical volume.

Conclusion: The high proportion of intraoperative fractures emphasises the need to improve surgeon training and surgical technique. Registry data should be interpreted with caution because of potential differences in coding standards between institutions. Cite this article: *Bone Joint J* 2021;103-B(4):650-658.

Keywords: Collar; Comorbidity; EPRD; Periprosthetic fracture; Registry; Risk factor; Surgical experience.

Item 1-1 of 1 ([Display the 1 citation in PubMed](#))

1. [Factors influencing periprosthetic femoral fracture risk.](#)

Konow T, Baetz J, Melsheimer O, Grimberg A, Morlock M.

Bone Joint J. 2021 Apr;103-B(4):650-658. doi: [10.1302/0301-620X.103B4.BJJ-2020-1046.R2](https://doi.org/10.1302/0301-620X.103B4.BJJ-2020-1046.R2).

PMID: 33789487