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Mortality following post-operative periprosthetic fracture of the femur after hip replacement in the last decade: Meta-analysis of 35 cohort studies including 4841 patients

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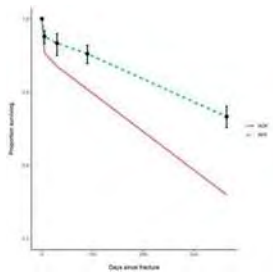
Introduction: Post-operative periprosthetic fracture of the femur (POPFF) is a growing problem associated with increased mortality. Most registry derived estimates of mortality only record patients who undergo revision and cohort studies are generally limited to a single center, which makes comparison for the purposes of service improvement difficult. The aim of this study is to perform a systematic review and meta-analysis of cohort studies reporting mortality following POPFF in the last decade.

Materials and Methods: Study methodology was peer-reviewed (PROSPERO: CRD42020170819). Literature search was conducted using Medline and EMBASE. Primary exposure was the diagnosis of POPFF, and the primary outcome measure was all-cause mortality: whilst an inpatient, within 30-days, within 90-days and within one year of POPFF. Proportion of patients dying (95% CI [confidence interval]) was estimated using metaregression. Results were compared to mortality following neck of femur fracture (NOF) from international NOF registry data.

Results: 4841 patients from 35 cohort studies were included. Study quality was generally low with a majority limited to a single centre. Weighted mean follow-up was 2.3 years and the most common POPFF was UCS B. Pooled proportion dying as an inpatient was 2.4% (95% CI 1.6% to 3.4%). Pooled proportion dying within 30 days was 3.3% (95% CI 2.0% to 5.0%). Pooled proportion dying within 90 days was 4.8% (95% CI 3.6% to 6.1%). Pooled proportion dying within one year was 13.4% (95% CI 11.9% to 14.8%). Mortality following POPFF was similar to that of NOF up to 30 days, but better at one year.

Conclusion: 3.3% of patients die following POPFF within 30 days of injury. Mortality is similar to that experienced by patients following NOF up to 30 days, but better at one year, which may represent the lower underlying risk of death in the POPFF cohort. These results may form the basis for evaluation of services treating POPFF in the future.



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