

## Comparing Mortality Following Hip Fractures In Centenarians And Patients Aged 65-99 Years: A Systematic Review And Meta-Analysis

Trauma / Hip & Femur Trauma / Complications

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### Background

The number of centenarians is projected to increase to between 13 and 50 million individuals worldwide during the 21st century. Outcomes of hip fracture in centenarians remain comparatively under-explored owing to the small number of patients reaching 100 years of age. No previous systematic reviews have been undertaken to compare mortality outcomes following hip fracture in centenarians and patients aged 65-99 years. Knowledge of these may allow health professionals to hold informed discussions with patients and relatives regarding prognosis following this injury type.

### Objectives

We aimed to compare mortality within one year following hip fractures in centenarians and patients aged 65-99 years.

### Study Design & Methods

The PRISMA 2020 checklist was followed. Electronic databases, conference proceedings, and the reference lists of included studies were searched. Studies were eligible if they reported outcomes of treatment for fractures in centenarians and in patients aged 65-99 years. A random effects meta-analysis using MetaXL was performed. Cochran's Q value and Higgins I<sup>2</sup> were used to assess statistical heterogeneity between the studies. To compare results between age groups, confidence intervals were used. Statistically significant results were considered in cases of non-overlapping confidence intervals.

### Results

A total of 4,671 records were screened. Of these, 24 articles satisfied the inclusion criteria, assessing 6,994 centenarians and 696,866 patients aged 65-99 years. Significant statistical heterogeneity was observed. Pooled one-year mortality in patients aged 65-99 years was 28.4% (95% CI: 23.7 to 33.3%). In-hospital mortality was 2.4% (95% CI: 1.2 to 3.9%), and three-month mortality was 19.0% (95% CI: 18.8 to 19.2%) in patients aged 65-99 years. Pooled one-year mortality in centenarians was 53.8% (95% CI: 47.2 to 60.3%). In-hospital mortality was 14.1% (95% CI: 9.5 to 19.5%), and three-month mortality was 41.2% (95% CI: 35.2 to 47.3%) in centenarians. Patients aged 65-99 had a significantly lower mortality rate than centenarians at all end-points assessed.

### Conclusions

Hip fractures in centenarians typically involve complex patient presentations, with higher mortality rates than patients aged 65-99 years. Effective cross-discipline communication and intervention is suggested to promote treatment outcomes. This meta-analysis provides further evidence of the

importance of health professionals to hold informed discussions with patients and relatives regarding prognosis following hip fractures.