

Increasing risk of post-surgery infections among hip fracture patients: A nationwide study 2005-2016

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Background

Post-surgery infections are associated with excess mortality among hip fracture patients. Changes in hospital care, including orthogeriatrics, could have had an impact on this, but data on recent trends in the risk of infections are lacking.

Objectives

We aimed to examine trends in the risk of infections in the month following hip fracture surgery, including hospital-treated infections, as well as community-based ones, in Denmark from 2005 to 2016.

Methods

We conducted a population-based cohort study based on individual-level record linkage of data from Danish nationwide registries. To evaluate the risk of infections, we identified any first time hospital diagnosis (admission or outpatient record) of infection, or community infection identified by first time antibiotic prescription/s, after hip surgery date. In addition, we examined specific infections, such as pneumonia hospitalization. We calculated biennial incidence rates (IR) per 1000 person-years (PY) with 95% confidence interval (95% CI), and, based on pseudo values methods, adjusted risk ratios (RRs) with 95% CI per calendar period, using the period 2005-2006 as a reference. RRs were adjusted by age, sex, and comorbidity (Charlson Comorbidity index [CCI]). All analyses were calculated 30 days after surgery.

Results

A total of 74 771 patients aged 65 years or older, with first time hip fracture surgery, were included. Risk of post-operative infections increased in the study period: IR of 30-day hospital-treated infections increased from 4.12 (95 % CI: 3.91-4.35) in 2005-2006 to 5.57 (95 % CI: 5.30-5.85) in 2015-2016 (adjusted RR 1.32 [95% CI: 1.23-1.41]), irrespective of patient's age, sex, and comorbidity. IR of hospital-treated pneumonia increased from 1.34 (95 % CI: 1.22-1.47) in 2005-2006 to 2.42 (95 % CI: 2.25-2.60) in 2015-2016 (adjusted RR: 1.69 [95% CI: 1.49-1.91]). Finally, 30 days IRs of community-based infection increased from 6.78 (95 % CI: 6.50-7.07) in 2005-2006 to 11.28 (95 % CI: 10.89-11.6) in 2015-2016 (adjusted RR 1.56 [95 % CI: 1.49-1.64]).

Conclusions

We found an increased risk of infection following hip fracture surgery during the 12-year study period. Given the high mortality following infections in the elderly, further research is needed to

identify patients at increased risk to target preventive treatment and potentially reduce complications and mortality in hip fracture patients.