

Incidence and risk factors for prosthetic joint infection within 90 days after hemiarthroplasty for femoral neck fractures in the elderly

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BACKGROUND & IMPORTANCE

Closed femoral neck fractures after low-impact trauma in the elderly are often treated with a hemiarthroplasty. In this setting, literature with respect to prosthetic joint infection (PJI) is scarce.

AIM & OBJECTIVES

The **objectives** of this study were to investigate **the incidence of PJI within 90 postoperative days** in this population and **the impact of the number of perioperative antimicrobial prophylaxis (PAP) administrations**.

Furthermore, **risk factors for PJI after hemiarthroplasty for femoral neck fractures in the elderly** were identified.



MATERIALS & METHODS

In this retrospective monocentric study, medical files of elderly (≥ 75 years) trauma patients with closed femoral neck fractures and treated with a hemiarthroplasty, admitted between January 2006 and July 2017, were evaluated. Patient follow-up was 90 days. In order to identify independently associated factors for infection, a Cox proportional hazards regression analysis with forward step was applied. Results were considered statistically significant if p-values were < 0.05 .

RESULTS

A consecutive series of **745 patients** (mean age 85 ± 5 years, 221 (29.7%) men) was treated with a hemiarthroplasty.

Within 90 postoperative days, 13 (**1.7%**) patients developed a PJI and 120 (16.1%) died due to other reasons than infection.

The applied PAP regimens consisted of intravenous cefazoline or clindamycine. Single and repeated PAP administrations (q8h) were observed. Patients who developed a PJI received a median of one (interquartile range (IQR), 1-2) PAP administration, which was not significantly different compared to the one (IQR, 1-3) PAP administration in patients that did not develop a PJI (HR=0.236 (95% CI 0.032 – 1.745) (p=0.157)).

Higher body weight (HR=1.05 (95% CI 1.008-1.094) (p=0.020)), **systemic corticoid use** (HR=4.790 (95% CI 1.275-17.997) (p=0.020)) and the **need for transfer to the intensive care unit (ICU)** for other reasons than infection (HR=8.692 (95% CI 2.353-32.106) (p=0.001)) were independently associated with the development of a PJI within 90 days (see Table 1).

Table 1: Cox proportion hazards regression analysis for PJI after fracture fixation in closed femoral neck fractures after low-impact trauma in the elderly (n = 745)

Covariate	HR	95 % CI	p - value
Weight, kg	1,050	1.008 – 1.094	0.020
Systemic corticoid use, yes	4.790	1.275 – 17.997	0.020
Postoperative ICU transfer, yes	8.692	2.353 – 32.106	0.001

PJI, prosthetic joint infection; n, number; HR, hazard ratio; CI, confidence interval

CONCLUSION & RELEVANCE

In this fragile trauma population, the observed 1.7% PJI incidence within 90 days is rather low compared to the incidence rate of 3.4 - 4.5% in literature¹⁻³. Our preliminary data show that the number of PAP administrations does not influence the risk of PJI. Patients with a higher body weight, with systemic corticoid use or with postoperative ICU transfer had a higher risk of developing a PJI and should be monitored closely for infection.

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