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Infection Control: Clinical epidemiology of nosocomial infections

Incidence and predictors of early postsurgical prosthesis joint infection. Preliminary data of an interventional multi-centre study

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Objectives: In the context of an interventional study to improve the diagnosis and management of acute postsurgical prosthesis joint infection (PJI) we present preliminary data of incidence of PJI and the risk factors associated with these infections.

Methods: Prospective cohort study of patients undergoing hip and knee arthroplasty in 7 hospitals in Andalucía (Spain) between March and October 2013. Standard criteria for acute postsurgical PJI were used. An active surveillance system to detect PJI was implemented. Epidemiological features, NNIS index, perioperative risk circumstances, and surgical wound status at discharge were collected. Chi-square test was used for qualitative variables and the Student t test or Mann-Whitney test for quantitative variables to analyse risk factors associated with infection. Logistic regression analysis was used to calculate adjusted risk estimates.

Results: Overall, 2029 arthroplasties (852 hips, 42% [311 hemiarthoplasties] and 1177 knees) were included; 154 (7.8%) were revision prosthesis. The reasons for arthroplasty were osteoarthritis in 1410 (70%), fracture in 397 (19.4%), and others in 222 (10.6%). The median age was 71 years (range: 15-99), 1334 (66.5%) were women, and 883 (76.5%) had comorbidities. Mean ASA index was 2.4 (SD: 0.6), median duration of surgery was 90 minutes (interquartile range [IQR]: 70-110), and mean NNIS index was 0.22 (SD: 0.43). Twenty-five (1.2%) PJI were detected; 17 (68%) were in hips, and 8 (32%) in revision prosthesis. Risk factors associated with PJI in crude analysis were: long-term care facility residence (15.4% vs 1.9%; p<0.003), hip instead of knee (3.8% vs 0.7%; p=0.05), revision prosthesis (5.2% vs 0.9%; p<0.001), surgery duration (median 115 minutes [IQR 62.5-150] vs 90 [IQR 70-107]; p=0.06), NNIS index (mean 0.6 [ED 0.7] vs 0.2 [ED 0.4]; p=0.01), and bleeding through the surgical wound (SW) (27.3% vs 0.9%; p< 0.001). Independent factors associated with PJI were revision prosthesis (OR=6.6; 95%CI 1.6-27.7; p<0.01), SW bleeding (OR=6.8; 95%IC 1.6-28.6; p<0.008) and ASA index (OR=4.5; 95%CI 1.2-16.2; p=0.02).

Conclusions: The incidence of postsurgical PJI was low, but the short follow-up has allowed only detect early infections. Risk factors associated with early PJI are identified and their presence should trigger a close follow-up of these patients.