



Perioperative antibiotic prophylaxis in hip and knee prosthesis procedures and risk of surgical site infection (SSI): results of the Infezioni del Sito Chirurgico in Interventi di Artroprotesi (ISChIA) cohort study of the Italian Study Group GISIO – SItI

A. Agodi*, F. Auxilia, M. Barchitta, D. D'Alessandro, I. Mura, C. Pasquarella, M.L. Cristina, P. Farsetti, D. Guareschi, G. Longo, R. Malatesta, U. Moscato, M. Nobile, L. Ricotta, F. Rossi, G. Sessa, S. Tardivo, V. Torregrossa, P. Tranquilli Leali, P. Vitali (* Department GF Ingrassia, University of Catania, Italy, agodia@unict.it)

INTRODUCTION AND PURPOSE

Perioperative antibiotic prophylaxis (PAP) is considered one of the most effective measures for preventing surgical site infections (SSIs). Although there is consensus on the benefits of using PAP there is still considerable scope for improving its use. In the framework of the multicentre ISChIA project, funded by the Italian Ministry of Health, we focused on PAP practice and risk of SSI in hip and knee prosthesis procedures.

METHODS

A patient-based prospective SSI surveillance was performed according to the HELICS-SSI protocol. Compliance of the current prophylactic antibiotic practices with the published national guidelines (SNLG 17, 2008) was assessed considering appropriate decision-making, timing of administration, agent prescribed and total duration of prophylaxis. Risk factors associated to SSI were evaluated using multiple logistic regression analysis.



RESULTS

A total of 1285 elective hip (61.1%) and knee (38.9%) prosthesis procedures performed in 14 hospitals and in 28 operating theatres (OTs) were included. The mean age of the patients was 69.9 years. SSI cumulative incidence was 1.27 per 100 hip and 2.40 per 100 knee procedures. SNLG 17 (36.8%) or other PAP guidelines were adopted. PAP was prescribed and administered for 1271 (98.9%) of the procedures. First generation cephalosporins were administered pre-operatively in 56.8% of operations, vancomycin in 16.1%. Adequate timing of PAP (<30-60 minutes before incision) was observed in 73.0% of procedures. Prolonged application of PAP (>24 hours) was observed in 39.2% of cases. Considering all components of compliance, PAP was performed appropriately in 45.0% of surgical operations, in accordance with national guidelines (39.0% hip and 55.0% knee; $p=0.000$). After multiple logistic regression analysis, also controlling for appropriate PAP use, the single independent risk factor associated to SSI was the National Nosocomial Infections Surveillance (NNIS) risk index >0 (RR: 4.0; 95%CI: 1.0-15.7).

CONCLUSIONS

Although considerable evidence showing that there is no additional benefit in prolonging PAP there is a major challenge in surgeons misconception about its need. The gap between the evidence-based guidelines and practice must be addressed in order to improve PAP and reduce the risk of SSIs, given the increasing number of replacement procedures in Italy and worldwide.