

Guidelines on chemoprophylaxis in geriatric surgery

L. Annunziato

Division Pharmacology, Dept. of Neurosciences, School of Medicine, University of Naples Federico II, Via Pansini 5, 80131, Naples, Italy; e-mail: lannunzi@unina.it

Generally, geriatric patients are more susceptible to drug effects, and adverse drug reactions are observed 2-3 times more frequently in elderly than in younger adults. This problem is attributed to multimorbidity and polypharmacy in older people, but also the alteration of pharmacokinetic and pharmacodynamic mechanisms induces altered drug response in old age. Also surgical risk in elderly patients is increased and most of this excess risk is because of associated comorbid conditions. Post-operative infections represent 25% of all nosocomial infections and, particularly, surgical site infections (SSIs) are the second most common cause of nosocomial infections. In fact, up to 2% to 5% of patients undergoing extra-abdominal operations and up to 20% undergoing intra-abdominal operations will develop an SSI. Surgical antibiotic prophylaxis is effective in preventing post-operative wound infections and several guidelines are designed to optimize antimicrobial use in this setting, but inappropriate antimicrobial prophylaxis is harmful and increases the risk of antimicrobial resistance. In 1961, Burke demonstrated that experimental incision conta-

minated with *Staphylococcus aureus* could not be distinguished from incisions that had not been contaminated when antimicrobial drugs were administered before the incision. Therefore, optimal chemoprophylaxis ensures that adequate concentrations of antimicrobial are present in the serum, tissue, and wound during the entire time that the incision is open and at risk for bacterial contamination.

The majority of published evidence demonstrated that antimicrobial prophylaxis after wound closure is unnecessary. In fact, prolonged use of prophylactic antimicrobial agents is associated with emergence antimicrobial resistance and several guidelines recommended that prophylaxis end within 24 hours after the operation. For most surgical procedures, b-lactams (cefazolin, cefuroxime, cefotetan) are the antibiotics most commonly used for prophylaxis and these antimicrobial agents are administered intravenously in 100% of cases.

Particularly, in geriatric surgery it is important to consider the concomitant therapies to avoid drug interaction and adverse drug reactions.