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INDIVIDUALISED DOSE OF GENTAMYCIN BASED ON CLINICAL PHARMACOKINETICS. A STUDY OF PROPHYLACTIC ANTIBIOTIC USAGE IN HEAD AND NECK SURGERY

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Abstract

Twenty patients, age of 18-65 years, with normal serum creatine underwent clean-contaminated head & neck surgery was divided into two groups. Group I represented those who fit for all dose (80 mg) and group II consisted of those with individualized dose. In both groups gentamycin was administered ½ -1 hour before skin incision. In both groups serum levels of gentamycin were calculated at hour 1 and hour 4 post administration. The gentamycin level of each group were compared, and analyzed by the use of t and F tests. The serum level of gentamycin in 1 hour post administration varied between 2.51 - 6.46 ug/ml (mean 4.366ug/ml) in group I and 3.85 - 5.23 ug/ml (mean 4.558 ug/ml) in group II, variability of gentamycin serum level concentration hour-1 in group I was significantly wider than in group II (F>3.18). The gentamycin serum concentration hour-4 was 1.51 -2.97 ug/ml (mean 2.01 ug/ml) and 1.16-2.39 ug/ml (mean 1.70 ug/ml) in group I and group II respectively, there was no significant difference of variability between the two groups and those gentamycin serum concentrations were still effective as prophylactic antibiotic. The drug side effect monitoring by measuring the serum creatine pre and post operatively for all patients showed that there was no increasing of serum creatine more than 0.5mg/dL. We conclude that with the individualized regimen dose we could ascertain and calculate the effective dose of gentamycin for prophylaxis in surgery, it would give more constant serum concentration especially in hour-1 post administration when the surgery is started, and the serum concentration hour-4 was still effective as prophylactic antibiotic. The individualized regimen dose of gentamycin will be safe for the patient because the dose calculation is based on the clinical pharmacokinetic parameters.

Keyword : individualised, dose, gentamycin, pharmacokinetics,

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