
Poster

[P25-1] P25-1: Anti-infective drugs (1): Aminoglycosides and beta-lactams

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[P25-1-9] PROSAB Study: Concentration of cefazolin and ciprofloxacin in prostate tissue

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Background

Postoperative bacteremia and prostatitis are known complications after transurethral resection of the prostate (TURP) and is seen in 1.8-64% of the patients undergoing this procedure, despite antibiotic prophylaxis (1,2). To reduce infectious prostatitis, concentrations higher than de minimal inhibitory concentration (MIC) of an antibiotic in the prostate need to be achieved. With the present prophylactic schemes it is not known whether adequate tissue concentrations are achieved.

The aim of this study was to investigate the concentration of cefazolin or ciprofloxacin in prostate tissue after a single dose.

Methods

At the day of the TURP patients in group A (n=15) received 1 gram cefazolin IV (bodyweight <80 kg) or 2 gram cefazolin IV (bodyweight >80 kg). Cefazolin was given at the start of the procedure. Patients in group B (n=15) received 500 mg ciprofloxacin orally one hour before the start of the procedure.

At the start of the TURP procedure a plasma sample of 1 ml was drawn. Prostate tissue chips of 2 cc were collected at the start and the end of the resection.

The antibiotic concentrations were determined in the prostate samples after homogenization and extraction. Antibiotic concentration in plasma and prostate tissue samples were determined by a validated liquid-chromatography-tandem mass spectrometry analytical method

Results

Cefazolin (1-2 gr IV)

Prostate tissue and serum concentrations were >MIC in all patients (tissue start procedure mean = 80,2 ± 38,6 g/g, tissue end of procedure mean = 40,2 ± 12,3 g/g, serum mean = 126,5 ± 19,1 mg/l).

Ciprofloxacin (500 mg po)

Prostate tissue and serum concentrations were >MIC in 11 patients (tissue start procedure mean = 4,9 ± 2,2 g/g, tissue end of procedure mean = 5,0 ± 2,2 g/g, serum mean = 2,3 ± 0,9 mg/l). In 3 patients the ciprofloxacin prescription did not lead to detectable concentrations in prostate tissue and serum.

Conclusions

After a single ciprofloxacin 500mg oral dose or a cefazolin 1-2 grams iv dose adequate concentrations were achieved in prostate tissue and serum. Both antibiotics can be used for antibiotic prophylaxis in patients undergoing a TURP.

