



Efficacy and Cost of Three Different Antimicrobial Prophylaxis Drug in Microsurgical Transsphenoidal Surgery: A Preliminary Report

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Introduction:

The prevention of surgical site infections (SSI) is an important public health concern. In order to study methods and strategies of reducing surgical complications, the Surgical Care Improvement Project (SCIP), adopted the timely administration of prophylactic antibiotics as one of the important quality measures (1). The key concepts of antibiotic prophylaxis are represented by selection, timing, duration and route of antimicrobials administration depending on the type of surgical procedure. Antimicrobial prophylaxis (AMP) for neurosurgery including operations of elective craniotomy, cerebrospinal fluid shunting procedures and intrathecal pumps are apparently clear in guidelines. On the contrary, there is no comprehensible recommendation for transsphenoidal surgery (TSS). TSS is a quite safe procedure and infectious complications are infrequent. Then do we really need an antibacterial prophylaxis for TSS or what is the optimal antibiotic choice and duration? Previous studies reported low incidence of meningitis and sinusitis after TSS with different AMP drugs usually did not have comparison group. So a comparative study is needed to determine appropriate option of AMP for TSS (2).

The aim of this study was to compare the efficacy and cost of three different AMP drug (ceftriaxone, cefazolin or intranasal fusidic acid) in TSS.

Methods and Methods:

We have retrospectively analyzed the clinical records of patients (aged >18 years) who underwent pituitary surgery between January 2012 and February 2016 in the Department of Neurosurgery of the Erciyes University. The patients who received chemoprophylaxis with two doses cefazolin (30 min. before and 8 hours after operation) or one doses ceftriaxone (30 min before operation) or fusidic acid 1 % drops (intranasal, two times daily for three days) were included. Patients were evaluated for the development of surgical site infection by means of hospital and postdischarge surveillance for postoperative 30 days. All patients were operated by a single experienced neurosurgeon. Patients who were receiving antimicrobial therapy in the preoperative period and who had a complication of large cerebrospinal fluid leak were excluded.

Table 1. Comparison of demographics, clinical features and perpatient cost of three groups of AMP who underwent transsphenoidal surgery

	Cefazolin n=32 (%)	Ceftriaxone n=50 (%)	Fusidic acid n=44 (%)	p
Mean age ± sd	43.3±13.1	45.9±12.4	44.6±16.0	0.702
Male gender	16 (50.0)	26 (52.0)	16 (36.4)	0.276
Underlying diseases				
Diabetes mellitus	6 (18.8)	9 (18.0)	10 (22.7)	0.835
COPD	1 (3.1)	3 (6.0)	0 (0.0)	0.305
Hipertension	5 (15.6)	11 (22.0)	12 (27.3)	0.501
Heart failure	0 (0.0)	1 (2.0)	1 (2.3)	1.000
Renal failure	0 (0.0)	1 (2.0)	0 (0.0)	1.000
Cost (per patient)	5.32 €	1.33 €	2.5 €	-
Infection rate	0/32 (0.0)	0/50 (0.0)	0/44 (0.0)	-

Results:

A total of 126 patients were included underwent transsphenoidal surgery. The age range of the patients was 28-60 years (mean: 44.8 and 68 (54 %) of them were females. Of them 32 (25.3%) received chemoprophylaxis with cefazolin, 50 (39.6%) one dose ceftriaxone and 44 (34.9%) fusidic acid drops. No case of peri- and post-operative meningitis or any other infections occurred in all groups.

Conclusion:

Compared three AMP drugs for TSS were found similarly effective with no reported infectious complication. Though the infection risk is very low cost and ease of use should be evaluated for the drug of choice. Ceftriaxone seems to have an advantage than those of other comparatives. On the other hand, considering the cost, side effect of the drugs and rise of antibiotic resistance the requirement of AMP is also controversial at hospitals where the infection rate is very low and the majority of infections are treatable (2).

References:

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