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Primary assessment of electrode pharmaphoresis efficacy in treatment of chronic bacterial prostatitis

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INTRODUCTION & OBJECTIVES: Treatment of chronic bacterial infection is often complicated by multiresistance of engaged infectious agents. In case of chronic prostatitis, this is further aggravated by unfavourable prostate pharmakokinetics of many antibiotic drugs. Newly developed system of electrode pharmaphoresis (Farma T.E.B.) allows to non-invasively inject virtually any water-soluble medication into the body to the depth of 10-12 cm. We investigated whether the system can be efficiently used in the management of chronic bacterial prostatitis.

MATERIAL & METHODS: We recruited 41 men with chronic bacterial prostatitis (NIDDK/NIH type II) who were randomly assigned to main Farma T.E.B. (n=20) vs control oral (n=21) antibiotic treatment groups. Antibiotic medication was chosen according to the findings of post-massage urine or sperm culture. In the main group, antibiotic pills making up standard oral dose were dissolved in 20 ml of 0.9% NaCl, and administered via skin of the perineum. Treatment patterns were conventional in both groups, including adjuvant NSAIDs and vasotropic agents. Treatment efficacy was estimated by pre-treatment, intermediate (at 2 wks) and final (at 4 wks) clinical quality of life (NIH-CPSI) and laboratory (detection of bacteria and WBCs in urine or sperm) data.

RESULTS: Both groups were comparable by patient age and NIH-CPSI score. 5 patients in each group had failed previous oral pharmacotherapy. Symptoms were pelvic pain (85% and 81% in main and control groups, respectively), urinary frequency without signs of BPO (25% and 19%), pain or burning on urination (15% and 14%), painful ejaculation (10% and 9%), secondary erectile dysfunction (10% and 9%), Bacteriologic testing revealed E. coli as causative agent in 60% and 62% of patients, other pathogens being E. faecalis (35% and 42%), K. pneumoniae (20% and 14%), P. aeruginosa (5% and 0%) and S. aureus (10% and 5%). 33% and 23% of E. coli respectively were resistant to fluorquinolones, the same figures being still higher for other pathogens. In these patients, as bacteria proved sensitive to cephalosporins, main group were treated with transdermal administration of ceftriaxone, whilst in the control group therapy included TMP-SMX, azitromycine, or doxycycline. The only patient with P. aeruginosa infection received transdermal imipinem/cilastatine 1 g bid.
By two weeks of treatment, 75% and 57% of patients respectively reported clinical improvement (as measured by the NIH-CPSI index). By the end of the protocol, clinical improvement was observed in 90% and 71% and laboratory testing verified bacterial eradication in 95% and 80% of patients respectively. On performing group subanalysis, electrode pharmaphoresis appeared significantly superior to oral pharmacotherapy in patients previously treated with oral antibiotics (clinical efficacy 80% vs. 40%) and in fluoroquinolone-resistant pathogens (clinical efficacy 80% vs 20%), though small sample size doesn't allow to regard these findings reliable.

CONCLUSIONS: Transdermal non-invasive injection of antibiotic drugs may be not inferior to systemic treatment in chronic prostatitis. This innovative technique expands the spectrum of used medications to virtually any water soluble drug, regardless of their prostate pharmacokinetics in systemic administration. It may be especially helpful in treating patients with lingering multiresistent bacterial infections.