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THE EFFICACY OF BIOFEEDBACK AND TENS THERAPY ON MILD AND MODERATE HYDRONEPHROSIS ASSOCIATED TO DYSFUNCTIONAL VOIDING IN CHILDREN

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Aim: The aim of the present study is to evaluate the efficacy of the treatment of transcutaneous electrical nerve stimulation(TENS) and biofeedback in mild and moderate hydronephrosis diagnosed by ultrasonography in dysfunctional voiding.

Materials and methods: Twelve patients diagnosed as dysfunctional voiding with mild and moderate hydronephrosis detected in the upper urinary tract were included in the study. Diagnosis was made clinical symptoms, voiding frequency/volume charts, lower urinary tract symptom score, ultrasonography of urinary system. Voiding cystouretrography was performed to all patients due to frequent urinary tract infection. Neurogenic diseases and vesicoureteral reflux patients were excluded from the study. Pre and post dysfunctional voiding treatment hydronephrosis levels were compared and evaluated retrospectively. It was also observed that all dysfunctional voiding cases had coexisting overactive bladder. Thus in addition to biofeedback treatment, TENS was also applied. Uroflow biofeedback treatment was applied by Aymed Dyno™ instrument, first month two sessions per week, second month one session per week, and a total of 12 sessions. TENS treatment was performed at parasacral area 3 sessions/week, 30 min/day, a total of 20 sessions.

Results: Of total 12 patients, 7 female and 5 male and the mean age of the patients were 8.4 years. Since 6 cases had bilateral hydronephrosis, hydronephrosis levels were assessed in a total of 18 kidneys. After treatment, hydronephrosis was disappeared in 15 of 18 renal units, regress 2 levels in two renal units and 1 level in 1 renal unit. Decreas of hydronephrosis was significant statisticaly (Wilcoxon, $p<0,001$).

Conclusion: In the present study we observed that additional TENS treatment to biofeedback training which is a very effective treatment in dysfunctional voiding, decreased or cured the hydronephrosis in children. When the dysfunctional voiding is treated properly the risk of upper urinary tract complications is also reduced.