

CHANGES IN UROFLOW PARAMETERS AFTER CHILDBIRTH: COMPARISON BETWEEN VAGINAL DELIVERY AND CESAREAN SECTION

Aims of Study

The cause of voiding problems before and after labor in woman is unclear. This study was done to evaluate the changes of uroflow parameters before and immediate postpartum period according to the labor mechanism.

Methods

We assessed the impairments of lower urinary tract function with uroflowmetry before and after vaginal delivery, Cesarean section (C-section). This result was compared with normal control. Jupiter 8000 (FM Wiest®) uroflowmeter was used. 44 patients delivered by spontaneous vaginal delivery (group 1) and 46 patients by Csection (group 2) and 28 non-pregnant young women (group 3) were included in our study. Uroflow was measured in a day before and 2 days after delivery. Uroflow parameters were voided volume, maximal flow rate, mean flow rate, time to peak flow, total flow time. Mean values were calculated for parameters of non-pregnant control and of pregnant women before and after delivery. Mean value of the uroflow parameters in each group was compared using ANOVA (analysis of variance) ttest. For continuous data (age, baby weight, parity), linear associations with each of the uroflow parameters were assessed using a Pearson correlation coefficient.

Results

The mean age of the each group was similar. The baby weight was not different statistically between group 1 and group 2. Maximal and mean flow rates of pregnant women were lower than control group and were not changed after delivery (Table). Total flow time of pregnant woman was longer than control group before delivery and increased after delivery, especially after C-section (Table). Time to peak flow of pregnant women was shorter than control group before delivery, whereas it was similar to control group after delivery. Total voided volume was less than control group before delivery. It was increased after delivery with no difference from control group.

Table. The difference of uroflowmetric parameter of non-pregnant women (control group) and pregnant women before and after delivery.

	Control	delivery mode	Before delivery		After delivery	
				?		?
MxFR (Mean±SD, ml/sec)	22.7±5.1	NVD	19.4±5.6	?	19.9±6.0	?
		C/SEC	17.6±4.6	?	17.8±6.0	?
MnFR (Mean±SD, ml/sec)	13.3±3.7	NVD	10.2±3.9	?	9.7±4.1	?
		C/SEC	8.7±3.4	?	8.5±4.3	?
TFT (Mean±SD, sec)	8.1±5.3	NVD	13.2±5.4	?	26.8±14.3	??
		C/SEC	14.9±6.7	?	37.7±26.2	???
PT (Mean±SD, sec)	16.3±6.1	NVD	8.0±5.5	?	16.4±19.2	?
		C/SEC	8.9±12.2	?	25.7±44.8	?
Vol (Mean±SD, ml)	209±90.7	NVD	123.3±50.0	?	235.0±124.3	?
		C/SEC	119.6±50.9	?	258.1±130.7	?

? : lower than control group statistically
= : equal to control group statistically
MxFR : Maximal Flow Rate
TFT : Total Flow Time
Vol : Total Voided Volume

? : higher than control group statistically
?? and ??? : more higher after delivery
MnFR : Mean Flow Rate
PT : Time to Peak flow
NS : Not Significantly different statistically

Conclusions

In this prospective study, there was no statistically differences before and after normal vaginal delivery and C-section in maximal flow rate. Total flow time was much prolonged after delivery, especially after C-section. Time to peak flow and voided volume were restored to the levels of non-pregnant women after delivery.