

## COMPARISON OF OESTRADIOL AND OESTRIOL INFLUENCE ON PULSATILITY INDICES IN PERIURETHRAL VESSELS IN WOMEN SUFFERING FROM URINARY STRESS INCONTINENCE

### Hypothesis / aims of study

The vascularization of the urethra seems to be an important factor influencing its function. Doppler velocimetry enables objective evaluation of the periurethral vessels. Pulsatility index (PI) is one of the valuable features characterizing the function of the vessels. The aim of the study was to compare the influence of locally administered oestradiol and oestriol on the pulsatility indices of periurethral arteries in menopausal women with stress urinary incontinence.

### Study design, materials and methods

The studied group consisted of 48 menopausal women suffering from urinary stress incontinence. The women were randomly divided into two groups: E<sub>2</sub> (N=25) – receiving vaginal 17 $\beta$ -oestradiol initially 25  $\mu$ g pro die for two weeks followed by 25  $\mu$ g twice a week and E<sub>3</sub> (N=23) - receiving vaginal oestriol initially 0.5 mg pro die for two weeks followed by 0.5 mg twice a week. The values of pulsatility index (PI) in periurethral arterial vessels were measured 3 times by means of Doppler velocimetry assessment using a 7.5 MHz transvaginal probe (Medison SONOACE 9900 Prime) in the sagittal plane and the mean value was calculated. The PI values were measured before, after 3, and after 6 months of treatment.

### Results

The median values (ranges) of pulsatility indices before, after 3, and after 6 months of vaginal administration of 17 $\beta$ -oestradiol (E<sub>2</sub>) were 3.1 (2.6-3.7), 3.1 (2.7-3.7) and 3.0 (2.5-3.7) respectively and significantly decreased during the treatment (Friedman ANOVA,  $\chi^2=12.94$ , p=0.0016). In the group receiving oestriol, (E<sub>3</sub>) the same variables were 3.0 (2.6-3.4), 3.1 (2.7-3.4) and 3.0 (2.5-3.3) respectively and significantly decreased during the treatment (Friedman ANOVA,  $\chi^2=11.37$ , p=0.0034) as well. The values of PI decreased in 18/25 patients in E<sub>2</sub> group and in 14/23 patients in E<sub>3</sub> group. There were no differences between PI values in E<sub>2</sub> and E<sub>3</sub> groups in none of the points of assessment (Mann-Whitney U Test: Z=1.33, p=0.18; Z=1.61, p=0.11; Z=1.64, p=0.10 respectively).

### Interpretation of results

The statistically significant decrease in PI values in periurethral arterial vessels achieved after 6 months of treatment did not depend on the type of estrogen administered vaginally.

### Concluding message

The improvement in the periurethral blood supply does not depend on the type of vaginally administered estrogens.

<b>Specify source of funding or grant</b>	<b>Grant of Medical University in Lublin</b>
<b>Is this a clinical trial?</b>	<b>Yes</b>
<b>Is this study registered in a public clinical trials registry?</b>	<b>No</b>
<b>What were the subjects in the study?</b>	<b>HUMAN</b>
<b>Was this study approved by an ethics committee?</b>	<b>Yes</b>
<b>Specify Name of Ethics Committee</b>	<b>Bioethical Committee of Medical University in Lublin</b>
<b>Was the Declaration of Helsinki followed?</b>	<b>Yes</b>
<b>Was informed consent obtained from the patients?</b>	<b>Yes</b>