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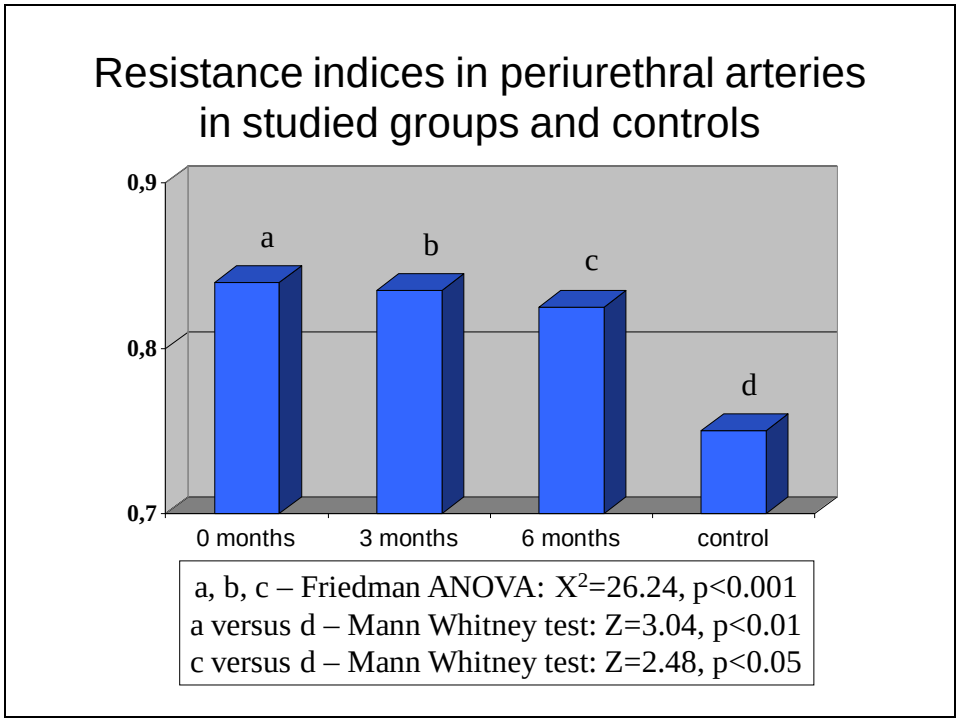
THE EFFECT OF VAGINALLY ADMINISTERED ESTROGEN ON THE PERIURETHRAL VESSELS RESISTANCE INDEX IN STRESS INCONTINENT WOMEN

Introduction. Menopausal stress urinary incontinence may be connected with various morphological changes of the urinary tract, possibly caused by the depletion of estrogen. It may affect the estrogen dependent tissues such as blood vessel walls, which may cause poor blood supply for the periurethral structures responsible for urinary continence. The lesser vascularization of these structures may result in their malfunction. The role of transvaginal ultrasound in the assessment of urinary incontinence seems to be irreplaceable. Resistance index (RI) measured in the periurethral vessels mirrors the arterial blood flow in the periurethral structures which are crucial for urinary continence. Transvaginal power Doppler ultrasound measurements of urethral arteries RI seem to be a highly reproducible and sensitive method for detecting pathological changes in this area.

The aim of the study was to evaluate the influence of topically administered estrogens on RI changes in periurethral arterial vessels in women suffering from stress urinary incontinence.

Material & methods. The studied group consisted of 20 menopausal women suffering from urinary stress incontinence. 24 perimenopausal continent women were recruited as a control group. The values of RI in periurethral arteries were measured by means of Doppler velocimetry assessment 3 times using a 7.5 MHz transvaginal probe and the mean value was calculated. The variables among the studied women were measured before, after 3, and after 6 months of treatment with vaginal estradiol, initially 25µg pro die for two weeks, followed by 25 µg twice a week.

Results. The median values (ranges) of RIs were 0.840 (0.69-0.94), 0.835 (0.68-0.94) and .825 (0.68-0.93) respectively, and they decreased significantly (Friedman ANOVA, χ^2=26.24, p<0.001) during the treatment. The RI value (range) in the control group was 0.75 (0.65-0.88). It differed significantly from the values of the studied group (Mann-Whitney U test) in the beginning of the study (Z=3.04, p<0.01) as well as after 6 months of treatment (Z=2.48, p<0.05).



Interpretation of results. The 6-month-long estrogen therapy results in significant lowering of RI values in periurethral arteries. The RI values of the studied group treated with topical estradiol did not reach the RI values of the controls. The treatment did not lead to the eradication of the differences between the RI values in the studied group as compared with the control group.

Conclusion. Treatment with vaginal estrogen decreased the resistance in periurethral arteries and thus seemed to ameliorate the blood flow in periurethral structures.

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Is this a clinical trial?	**Yes**
Is this study registered in a public clinical trials registry?	**Yes**
Specify Name of Public Registry, Registration Number	**This study has been registered in Medical University in Lublin**

	registry
Is this a Randomised Controlled Trial (RCT)?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**This study was approved by Medical University in Lublin Ethics Committee**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**