

Vascular Impedance of Uterine, Inferior Vesicle, and Ophthalmic Arteries in Postmenopausal Women Receiving Hormonal Replacement Therapy: Comparative Doppler Study

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Aim. To investigate the effects of combined hormone replacement therapy (HRT) on the vascular impedance of the uterine, inferior vesicle, and ophthalmic artery.

Methods. Thirty-five postmenopausal patients were divided in two groups: 21 patients with 1-5 years of menopause and 14 patients with ≥ 6 years of menopause. Each group was examined in basal condition and after 1, 3, and 6 months of HRT. The blood flow impedances of the uterine, inferior vesicle, and ophthalmic arteries were analyzed by color Doppler. Estradiol plasma concentrations were assayed on the day of Doppler examination.

Results. The analysis of uterine and inferior vesicle artery flow velocities showed a significant positive correlation between the resistance index (RI) and years of menopause. Higher impedance values were found in patients with longer interval from last menstrual bleeding ($p < 0.05$). In patients with ≥ 6 years of menopause, the impedances of uterine and inferior vesicle arteries were 0.94 ± 0.03 and 0.91 ± 0.04 , respectively, whereas in patients with 1-5 years of menopause the impedances were 0.89 ± 0.04 and 0.98 ± 0.02 , respectively. We noticed no significant correlation between baseline RI and duration of menopause at the level of ophthalmic artery in either group (0.72 vs. 0.73 , respectively; $p < 0.05$). After six months of HRT, plasma estradiol concentrations inversely correlated with RI of uterine ($r = 0.2556$; $p = 0.021$), inferior vesicle ($r = 0.2653$; $p = 0.023$) and ophthalmic ($r = -0.2211$; $p = 0.017$) arteries.

Conclusion. Doppler studies of uterine, inferior vesicle, and ophthalmic arteries can provide specific and precise pathophysiological information to assess blood flow variations in correlation with combined HRT.

Key words: *blood flow velocity; Doppler ultrasonography, color; estrogen replacement therapy; hormone replacement therapy, postmenopausal; ophthalmic artery; uterus, blood supply; postmenopause*

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