ASSESSMENT OF ENDOMETRIAL THICKNESS AND SUBENDOMETRIAL PERFUSION BY 3D POWER DOPPLER IN WOMEN WITH UNEXPLAINED INFERTILITY AND PCOS

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Abstract Body

Background: Both the endometrium and embryo share the burden of achievingsuccessful implantation and pregnancy. Therefore, abnormal endometrial receptivity is suggested to be of the contributing factors of subfertility. A traditional method of endometrial assessment during clinical work up of subfertility is measurement of its thickness. Assessment of endometrial and sub-endometrial blood perfusion may reflect its function and receptivity. A relatively more recent approach is to use 3D Power Doppler ultrasound to quantitatively measurethe vascularity indices of both endometrium andsubendometrium.Methods: We conducted a cross sectional observational study in Women's Health Hospital, Assiut University, Egypt. We included 90 participants divided into 3 groups; Group1: women with unexplained subfertility, Group 2: women with polycystic ovary syndrome (PCOS) and Group 3: fertile women as control. During the mid-luteal phase (20th – 24th day of menstrual cycle), the following ultrasound measurements were obtained for each participant; endometrial thickness, pulsed wave Doppler of uterine arteries, uterine and endometrial volumes and 3D Power Doppler vascularity indices; VI (vascularization index), FI (flow index) and VFI (vascularization flow index).Results: There was no statistically significant difference between all groups in endometrial thickness, pulsatility (PI) and resistance (RI) indices of uterine arteries, uterine and endometrial volumes. However, there were significantly lower vascularity indices (VI, FI and VFI) of both endometrium and sub-endometrium in group1 of unexplained subfertility and group 2 of PCOS than control group 3. Also, correlation analyses showed no relation between vascularity indices and endometrial thickness in both groups 1 and 2 of sub-fertile women.Conclusions: Abnormal endometrial blood perfusion might affect its function and receptivity. It might be useful to incorporate 3D Power Doppler ultrasound during clinical work up for subfertile women. This may lead to better identification of women with abnormal endometrial receptivity; thus offering them a better patient-tailored treatment.