Objective. To assess the diagnostic agreement between 3D-power Doppler sonography and endometrial microvessel density in the differential diagnosis of endometrial pathology.

Methods. 40 postmenopausal patients with bleeding and ultrasound evidence of endometrial thickness >= 5 mm underwent 3D-power Doppler ultrasound to evaluate endometrial volume (EV), Vascularization Index (VI), Flow Index (FI), Vascularization Flow Index (VFI).

10 patients with endometrial cancer, 10 with endometrial polyp, 10 with endometrial hyperplasia without atypia, 10 with negative histology were selected based on hysteroscopic biopsy specimen.

Angiogenesis was immunohistochemically evaluated with CD34 through a semi-quantitative estimation of vascular density (grading) and the count of individual microvessels (score) on tissue samples.

Pearson's correlation coefficient, Kruskal-Wallis test and Wilcoxon-Mann-Whitney test were used for statistical analysis.

Results. Pearson's correlation coefficient showed a positive correlation between vascularity indexes and EV and microvessel density score (0.285 VI, 0.258 FI, 0.151 VFI, 0.445 EV).

VI was significantly higher in lesions with grading 3 + vs 2 + and 1 + (5.76 vs 1.92 and 1.57 p = 0.0361).

EV (17.27, 7.09 and 4.27) showed borderline significance (p = 0.0546). Not statistically significant differences for FI and VFI.

Score, VI, FI, VFI and EV were significantly higher in endometrial carcinoma compared to benign pathology (65.30 vs 37.40, p < 0.0001; 8.81 vs 2.70, p = 0.0008; 35.68 vs 27.95, p = 0.0138; 3.47 vs 1.69, p = 0.0023; 21.35 vs 7.27, p = 0.0017)

Conclusions. 3D power Doppler ultrasound can be considered effective for the diagnosis of malignant endometrial pathology in postmenopausal women with increased endometrial thickness at transvaginal 2D gray-scale ultrasound. VI aims to be the best diagnostic marker.