

## Benign endometrial lesions in premenopausal women: three-dimensional power Doppler sonography and cytokines content

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### ABSTRACT

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**Purpose:** To investigate the IL-2, IL-4, IL-6, IL-8, IL-10, TNF- $\alpha$ , IL-1 $\beta$ , IFN- $\gamma$  at the local and system levels in endometrial polyps and hyperplasia in premenopausal women; to assess whether three-dimensional power Doppler indices can discriminate between hyperplasia and proliferative endometrium.

**Materials and methods:** The prospective analysis included 80 premenopausal women with the suspicion of endometrial hyperplasia and endometrial polyp according to 2D ultrasonography data. Three groups of patients were analyzed according to histological data. There were 25 women with simple endometrial hyperplasia without atypia (the first study group), 15 patients with hyperplastic endometrial polyps (the second study group) and 40 healthy women with endometrium in the early proliferative phase (control group) in premenopausal age. The levels of some cytokines were determined by enzyme linked to immunosorbent assay in serum and in aspirates

from the uterus cavity. Three-dimensional power Doppler indexes of the uterus and endometrium were measured in endometrial hyperplasia and proliferative endometrium.

**Results:** Significant dysfunctional changes of local immune system of uterine mucosa in endometrial hyperplasia and endometrial polyp are expressed in activation of pro-inflammatory cytokines, with a deficit of anti-inflammatory cytokines. Endometrial three-dimensional power Doppler indices of uterine and endometrium were significantly higher in endometrial hyperplasia.

**Conclusions:** The local secretion imbalance of pro- and anti-inflammatory cytokines is present in endometrial hyperplasia and polyps in premenopausal age. Endometrial perfusion increases in endometrial hyperplasia by using three-dimensional power Doppler sonography in comparison with healthy women.

**Key words:** Endometrium, hyperplasia, polyp, cytokines, three-dimensional power Doppler.

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