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Innovative liquid-based cytology of fallopian tube smears in intraepithelial precancerous lesions diagnostics

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Context: Evidence accumulated over the last decades confirms the theory of ovarian high-grade serous carcinoma (HGSC) origin from the fallopian tube epithelium so it is significantly important to detect tubal intraepithelial lesions as early as posiible.
Objective: The goal of the study was to evaluate diagnostic value of liquid-based cytology for benign and precancerous lesions of the tubal epithelium
Methods: liquid-based cytology, histology, immunocytochemistry (ICC) (bcl-2 expression) and immunohistochemistry (IHC) (p16 and Ki-67 expression) were used. A chi-square test for a contingency table was used for statistical analysis.
Patients: 23 fallopian tubes from 14 patients (mean age 47,3 ± 13,3 years) with HGSC (n = 6), serous borderline ovarian tumours (SBOT) (n = 7), benign ovarian tumours (n = 10) were analyzed
Intervention(s): fallopian tube smear obtaining during laparoscopy with urogenital probe
Results. Hypocellular smears were revealed in 48 % of cases, normocellular in 32 % of cases, and hypercellular - 20 %. Marked anysonucleosis were revealed in 16 % of cases, moderate - in 24 %, and slight - in 40%.Marked irregularities of the nuclear membrane were found in 8%of cases, moderate - in 16%, slight - in 40%, and were absent in 28%of cases. Varied nuclear shape was found in all groups, but most often it was detected in patients with HGSC (in 83% of cases) and less often - in patients with benign tumours (in 30 % of cases). Statistically significant differences were found for two studied parameters only: nuclear polymorphism and irregularities of the nuclear membrane, which significantly more often were found in patients with HGSC ($p < 0.05$). Histologically STIC and more than 10 SCOUTs significantly more often were found in HGSC, whereas papillary tubal hyperplasia—in borderline ovarian tumours ($p < 0.01$).
Conclusion: Our study has demonstrated that liquid-based cytology can be used for the determination of fallopian tube epithelial malignant and benign cells and verification such precancerous intraepithelial lesions such as SCOUT and STIC. Thus, this method can play a leading role in ovarian cancer screening. The study results carried on the funds received

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