

Variances in the Expression of mRNAs Related to the Histaminergic System in Endometrioid Endometrial Cancer

Michał Czerwiński ^{1*}, Emilia Morawiec ², Dariusz Boroń ¹, Marcin Opławski ³, Beniamin Oskar Grabarek ^{2, 4*}

¹ Department of Histology, Cytophysiology and Embryology, Faculty of Medicine, Academy of Silesia, 41-800 Zabrze, Poland

² Department of Histology, Cytophysiology and Embryology, Faculty of Medicine in Zabrze, Academy of Silesia, 40-055 Katowice, Poland

⁴ Department of Gynecology and Obstetrics with Gynecologic Oncology, Ludwik Rydygier Memorial Specialized Hospital, 31-826 Kraków, Poland

⁵ Department of Neurosurgery, 5th Military Clinical Hospital with the SP ZOZ Polyclinic in Krakow, 30-901 Krakow, Poland

Research has indicated higher concentrations of histamine and polyamine in endometrioid tissue in comparison with healthy tissue. The aim of this study was to evaluate changes in the expression patterns of messenger RNA (mRNAs) related to the histaminergic system in endometrial samples and whole blood in women with endometrioid endometrial cancer. The study group consisted of 30 women with endometrioid endometrial cancer qualified for hysterectomy (G1 well-differentiated, 15 cases; G2 moderately differentiated, 8 cases; and G3 poorly differentiated, 7 cases). The control group included 30 women with no neoplastic changes during routine gynecological examinations. The molecular analysis consisted of the microarray analysis of mRNAs related to the histaminergic system, and reverse-transcription quantitative polymerase chain reaction (RTqPCR) Out of 65 mRNAs connected with the histaminergic system, 10 differentiate the samples of tissue and blood obtained from patients with endometrioid endometrial cancer in comparison with the control group ($p < 0.05$). mRNA histamine receptor 1,3 (HRH1, HRH3), and solute carrier family 22 member 3 (SLC23A2) differentiating samples of endometrioid endometrial cancer independent of either G or control. The selected mRNA transcripts seem to be promising for molecularly targeted therapies in the context of endometrioid endometrial cancer.

Keywords: endometrioid endometrial cancer, grading, histaminergic system, molecular marker