

EARLY DETECTION AND DIAGNOSIS (CIRCULATING DNA)

3P Autotaxin: A possible new biological marker of endometrial cancer

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Background: Endometrial cancer is the most common neoplasm of the female genital tract in Western Countries, with an incidence of 150000 new cases/year. Despite its high frequency, limited data are available about its molecular features. It is known that phospholipids play a key role in the cellular proliferation and dissemination in many human diseases. Some previous studies have demonstrated the importance of the lysophosphatidic acids' (LPAs) metabolism and their signalling pathways in human endometrial cells. LPAs are produced via phospholipase A2 (PLA2) and phospholipase D (PLD), also known as autotaxin (ATX).

Methods: In the present work, we performed a prospective study involving 60 patients divided into three groups after a hysteroscopic guided biopsy: the first included 26 patients with a histological diagnosis of endometrial cancer; the second was made of 5 patients affected by histologically evidenced endometrial hyperplasia without atypia; the third was composed of 29 patients characterized by benign condition. All the groups underwent hysterectomy, with either open or laparoscopic surgery, and a second endometrial biopsy on the surgical specimen, in order to perform a quantitative real-time PCR using pre-designed ATX/PLD primers. Significant differences between groups were determined via unpaired two-way or one-way Student's t test and ANOVA. A P-value <0.05 was considered statistically significant.

Results: From our data, we demonstrated a strong positive correlation between the gene expression of ATX in the surgical specimen and the endometrial cancers. Notably, we found other statistically significant results from the analysis of the population affected by endometrial cancer. In particular, the expression of autotaxin gene was higher in the endometrioid histotype, in case of type I endometrial cancer versus type II, in pre-menopausal women, in obese patients (BMI > 30) or in women with diabetes.

Conclusions: We could consider a possible role of ATX as a biomarker of endometrial cancer, mostly in endometrioid histotypes, reflecting the pathogenic conditions of type I endometrial cancer.

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