

Peripheral basophil count is increased in patients with endometriosis

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Introduction: Endometriosis affects up to 10% of premenopausal women causing pelvic pain and infertility. Whilst the pathogenesis remains unclear, estrogen-dependence and inflammation play a key role. Currently, laparoscopic surgery is the diagnostic gold standard. Thus, an urgent unmet clinic need for a minimally invasive and widely available diagnostic tool exists. Levels of circulating leukocytes have been suggested as potent biomarkers for various conditions and can be extracted from routine full blood count (FBC) tests. This study investigates the potential value of leukocyte subtypes as biomarkers for endometriosis.

Methods: Using prospective data from the ENDOX study we analyzed blood leukocyte subtype counts from preoperative FBC samples in 517 women who underwent surgery for suspected endometriosis. Women with negative laparoscopy were used as controls. Clinical and intraoperative surgical data were collected according to WERF EPHeCT standards. Differences in leukocyte subtypes were evaluated using T-test between groups and comorbidity differences were compared using Chi-square test. The value of basophil counts for the diagnosis and prediction of the stage of endometriosis was analysed using a logistic regression model.

Results: Data from 330 endometriosis patients and 187 controls were included. Basophils were the only leukocyte subtype found significantly increased in endometriosis patients ($P=0.005$) in both mild ($P=0.023$) and severe disease ($P=0.004$). This yielded a sensitivity of (70.4%) and specificity of (62.4%) in diagnosing endometriosis (AUC=0.559, $P=0.027$). No significant difference in the incidence of immunological disorders was seen between groups.

Conclusion: Our study is the first to analyze the potential diagnostic propensities of peripheral leukocytes for endometriosis. We found a positive association between the presence and severity of endometriosis and basophil counts, regardless of the presence of immunological disorders. This suggests that peripheral basophils show promise as diagnostic aids, but further research is necessary before they can be implemented in routine clinical care.

Key words: Endometriosis; basophil counts; biomarker