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TITLE

LIPIDOMICS ANALYSIS OF BLOOD PLASMA, PERITONEAL FLUID, ECTOPIC AND EUTOPIC ENDOMETRIUM BY DIRECT MASS SPECTROMETRY METHOD IN PATIENTS WITH ENDOMETRIOSIS.

AUTHOR/S

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ABSTRACT

Objective: Improving early diagnosis of endometriosis by direct mass spectrometry method.

Patients and Methods: 150 patients with ovarian endometriotic cysts and peritoneal endometriosis undergoing laparoscopic surgery (sept 2014 to march 2016) were enrolled; Control group : 50 patients with infertility and various benign disorders without endometriosis. All samples were collected during surgical procedures from endometriotic lesions and normal tissues. Differences in mass spectrometric profiles of endometriotic tissues and controls were analyzed in combination with morphological-histological evaluation. The lipidomic approach analysing biological fluids, endometrial eutopic and ectopic tissues at different localization was performed by direct high resolution mass spectrometry method.

Results: Out of 148 metabolites, 14 showed significant differences between endometriosis and controls. Main lipids were: phosphoethanolamine (PE O-20:0), sphingomyelin (SM 34:1), diglycerides (DG 44:9), phosphatidylcholines (PC 32:1, PC O-36:3, PC 38:7, PC 38:6, PC 40:8, PC 40:7, PC 40:6, PC O-42:1), and triglycerides (TG 41:2, TG 49:4, TG 52:3).

Discussion and conclusion: Our lipidomic approach defined the net outcome of several unbalanced lipids and fatty acids which are considered crucial in the pathophysiology of endometriosis. These categories of lipids have been directly involved in implantation, inner heightened proliferation and decreased apoptotic properties of endometriotic tissues, contributing to the chronic pain syndrome. Validation of these lipids as serologic biomarkers in subsequent studies may enhance non-surgical diagnostic capabilities for patients with suspected endometriosis and may reduce the need of diagnostic laparoscopy.

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