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Abstract

Multielemental Profile of Peritoneal Fluid in Gynaecology Patients Presenting with Uterine Myomas †

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Introduction: Uterine myomas are benign tumours that usually grow in the uterus. They are considered an estrogen-dependent disease which has been associated with an increased expression of estrogen receptor-α. Exposure to endocrine disruptor compounds (EDCs) acting as exogenous estrogens, such as cadmium, may be associated with the development of the disease. The aim of this study was to describe the multielemental profile of peritoneal fluid (PF), including potentially toxic elements (PTEs) and EDCs such as Pb and Cd in women presenting with uterine leiomyomas compared to control patients.

Methods: Ten PF samples were collected from female patients from the gynaecology division of San Juan de Alicante University Hospital, Spain, during laparoscopic surgery for ovarian cysts. PF samples were collected via aspiration into a sterile syringe, filtered through a 20 µm filter, and transferred to a glass centrifuge tube. The supernatants were stored in the dark at −20 °C until analysis. The diagnosis of uterine leiomyomas was confirmed via ultrasonography prior to surgery. Thus, the patients were divided into two groups: leiomyoma (*n*: 5) and control group (*n*: 5). An Agilent 8900 ICP-MS/MS (Agilent Technologies. Santa Clara, CA, USA) was used to analyse the samples. The clinical history of the patients was investigated to obtain clinical data, and information regarding lifestyle and exposition to PTEs was collected using a questionnaire created using the Research Electronic Data Capture (RedCap) software (https://projectredcap.org/software/, accessed on 1 April 2024).

Results: Concerning the elemental profile of PF, some PTEs (Ba, Ni, and V) were found in higher concentrations in the leiomyoma group. However, EDCs such as Cd and Pb were not quantified in the leiomyoma group.

Conclusions: The preliminary results of our study show that some PTEs, but not EDCs, were found in higher concentrations in the PF of women presenting with uterine leiomyomas. This report reveals that some PTEs could be involved in the development of the disease, although additional research is needed to confirm these differences.

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