







Abstract

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

Andrea López-Botella ^{1,2}, María José Gómez-Torres ^{1,*}, José-Luis Todolí-Torró ², Raquel Sánchez ², Irene Velasco ^{1,3} and Maribel Acién ^{3,4}

¹ Biotechnology Department, Faculty of Sciences, University of Alicante, Carretera San Vicente del Raspeig s/n, 03690 Alicante, Spain; andrea.lopez@ua.es (A.L.-B.); ivelasco@ua.es (I.V.)

² Department of Analytical Chemistry, Nutrition and Food Sciences, University of Alicante, Carretera San Vicente del Raspeig s/n, 03690 Alicante, Spain; jose.todoli@ua.es (J.-L.T.-T.); r.sanchez@ua.es (R.S.)

³ Service of Obstetrics and Gynecology, Unit of Human Reproduction, FISABIO—San Juan University Hospital, Carretera Alicante-Valencia s/n, 03550 Alicante, Spain; macien@umh.es

⁴ Gynecology Division, Faculty of Medicine, Miguel Hernández University, Carretera Alicante-Valencia s/n, 03550 Alicante, Spain

* Correspondence: mjose.gomez@ua.es

[†] Presented at the 1st International Electronic Conference on Toxics, 20–22 March 2024; Available online: <https://sciforum.net/event/IECTO2024>.

Keywords: uterine myomas; peritoneal fluid; multielemental profile; potentially toxic elements

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 μ m 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.

Author Contributions: Conceptualization, A.L.-B., R.S., J.-L.T.-T., M.J.G.-T., I.V. and M.A.; methodology, A.L.-B., R.S. and J.-L.T.-T.; software, A.L.-B., R.S. and J.-L.T.-T.; validation, R.S.; formal analysis, A.L.-B., R.S. and J.-L.T.-T.; investigation, A.L.-B., R.S., J.-L.T.-T., M.J.G.-T., I.V. and M.A.; resources,



Citation: López-Botella, A.; Gómez-Torres, M.J.; Todolí-Torró, J.-L.; Sánchez, R.; Velasco, I.; Acién, M. Multielemental Profile of Peritoneal Fluid in Gynaecology Patients Presenting with Uterine Myomas. *Proceedings* **2024**, *102*, 9. <https://doi.org/10.3390/proceedings2024102009>

Published: 3 April 2024



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R.S., J.-L.T.-T., M.J.G.-T., I.V. and M.A.; data curation, A.L.-B., R.S. and J.-L.T.-T.; writing—original draft preparation, A.L.-B.; writing—review and editing, A.L.-B., R.S., J.-L.T.-T., M.J.G.-T., I.V. and M.A.; visualization, A.L.-B., R.S., J.-L.T.-T., M.J.G.-T., I.V. and M.A.; supervision, R.S. and J.-L.T.-T.; project administration, I.V. and M.A.; funding acquisition, I.V. and M.A. All authors have read and agreed to the published version of the manuscript.

Funding: This study was funded by the Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana (UGP-19-042 and UGP-20-039). A.L.-B. is supported by the European Social Fund and the Generalitat Valenciana under a Ph.D. contract (ACIF-2021/243).

Institutional Review Board Statement: This study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (Ethics Committee) of Hospital Universitario San Juan de Alicante (committee protocol code: 19/344; date of approval: 17 December 2019).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflicts of interest.

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