

THE INFLUENCE OF INTRAMURAL FIBROIDS IN ART

A. Pellicer

Department of Obstetrics and Gynecology, University of Valencia School of Medicine and Dr. Peset University Hospital, Valencia, Spain

Uterine fibroids are the most frequent benign tumors during reproductive age. Whether intramural myomas cause infertility and should be removed is controversial as no study has addressed the underlying mechanism of infertility. To analyze the function of the human endometrium in women with and without intramural fibroids a study was designed employing whole genomic expression analysis during the window of implantation, in which 25 genes are differentially expressed in the human endometrium, according to previous studies. Simultaneously, the actual ability of the uterus with and without fibromas was tested in a clinical setting analyzing the outcome of oocyte donation cycles in a substantial number of patients accumulated over the years.

Human endometria of women with single intramural fibroids (Group A<5 cm and Group B>5cm) and controls (Group C) were collected on day LH+7 and processed for histology and gene expression analysis. Gene expression data were analyzed using different methods and validated by quantitative RT-PCR. To compare ART outcome, a total of 1,035 cases from our oocyte donation database were included, comprising patients with 1 fibroid<5cm (A1, n=532); 2 fibroids<5cm (A2, n=128); ≥3 fibroids<5cm (A3, n=125); 1 fibroid>5cm (B, n=22); and two control groups: C1 (n=93) women with previous myomectomy; and C2 (n=135) women without uterine pathology treated on the same dates as C1. There was a strong positive and negative correlation in the expression profile of 69 genes according to the fibroids's size, but only 3 of the 25 genes related to the window of implantation were dys-regulated. Oocyte donation outcome neither showed any inter-group differences in implantation and term pregnancy rates, nor a correlation between implantation and miscarriage with fibroid number and size. This study provides evidence that the presence of intramural fibroids not affecting the endometrial cavity may alter the expression pattern of some endometrial genes. Nonetheless, most of the genes involved in implantation are not affected. This is confirmed by fibroids having no effect on oocyte donation outcome when the size and number of myomas are carefully analyzed. Thus, the clinical lesson is that intramural fibroids that do not alter the endometrial cavity should not be removed unless there are other symptoms.