Fall 2012

The Effects of Polycystic Ovarian Syndrome on Implantation

Jessica Minor

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Recommended Citation

http://openscholarship.wustl.edu/vol8_iss1/105

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Polycystic ovarian syndrome (PCOS) is the most common cause of infertility among women of reproductive age, with an incidence reported as high as fifteen percent. Though oligo- or anovulation in women with PCOS may contribute to infertility, attempts to overcome these abnormalities through in vitro fertilization (IVF) have yielded poor success rates. This suggests that adverse endometrial receptivity accompanying the clinical state of women with PCOS may contribute to infertility. In this study, we hypothesized that endometrial stromal cells (ESCs) of women with PCOS may show impaired decidualization. Decidualization refers to the change in morphology and expression profile of ESCs upon exposure to progesterone, as during pregnancy.

ESCs were isolated from 4 women diagnosed with PCOS and 14 clinically normal, fertile controls. The ESCs were decidualized in vitro with a synthetic variant of progesterone, and tested for known markers of decidualization, including insulin-like growth factor binding protein-1 (IGFBP-1), interleukin-15, and prolactin. Our results showed no difference between PCOS patients and controls. This may suggest that endometrial receptivity may be affected by factors within the uterine environment, including circulating androgens and unopposed estrogen action on the endometrium. Complications due to obesity, which is found in fifty percent of women with PCOS, may also reduce fertility. This research contributes to our understanding of the mechanisms of infertility in women with PCOS, and informs approaches to fertility treatment.