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Evaluation of the effects of steroid hormones on collagen fibers in the endometrial stroma of ovulation-stimulated mice

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Abstract

Successful blastocyst implantation requires a suitable uterine environment. Ovarian hormones are responsible for endometrial maturation. The aim of this study is to investigate the effects of steroid hormones on collagen fibers and the diameter of endometrial glands in the endometrial stroma of ovulated mice. In this study, mice were divided into five groups after stimulation of ovulation and pregnancy: 1) Control 2) Experimental control 3) Estrogen 4) Progesterone, 5) Estrogen with progesterone 5 days after pregnancy, mice were killed by cervical vertebral dislocation and their uterus was sampled and prepared for light microscope. The results obtained from this study showed that progesterone administration reduces the thickness of collagen fibers in the endometrium, while injection of estrogen with progesterone can cause the growth of collagen fibers in the endometrium and increase the diameter of glands compared to progesterone. Also, histomorphometric results obtained from this study showed that the size of glandular diameter between groups was significant except in the estrogen and estrogen with progesterone groups. The results of this study also showed that progesterone compared to the control group cannot provide a suitable environment for implantation and the addition of estrogen to progesterone can create a better situation for implantation in the luteal phase.

Key words: Ovulation, Implantation, Collagen, Estrogen, Progesterone

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