Effects of Meloxicam, a Semi-Selective Cyclo-oxygenase 2 (COX-2) Inhibitor, on the Ultrasound Appearance of the Dominant Follicle Before and After the Luteinizing Hormone (LH) Surge

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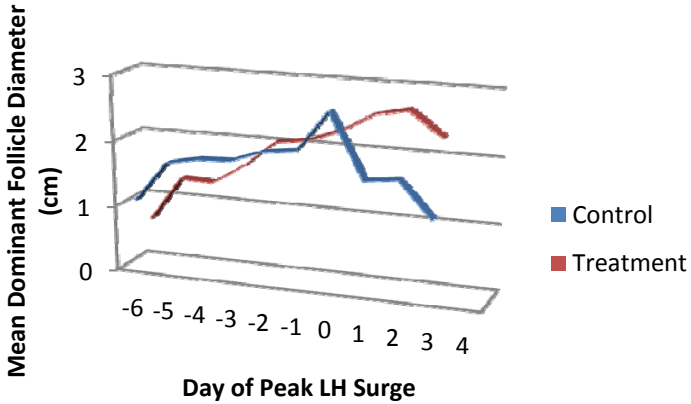
Objectives

Ovulation is preceded by the LH surge induced COX-2 expression. Administering COX -2 inhibitors prior to the LH surge results in delayed or dysfunctional ovulation. Prior data suggest that COX-2 inhibitors could function as emergency contraceptives. The objective of this study was to assess the effect of meloxicam on ovulatory function using ultrasound.

Methods

Participants took meloxicam 30mg during the treatment cycle on menstrual cycle days 5-22. Peripheral blood samples for estradiol, progesterone and luteinizing hormone, and transvaginal ultrasounds were obtained daily when the dominant follicle reached 18mm. Ultrasounds were evaluated for increased follicle dimensions, collapse of the dominant follicle and formation of a corpus luteum.

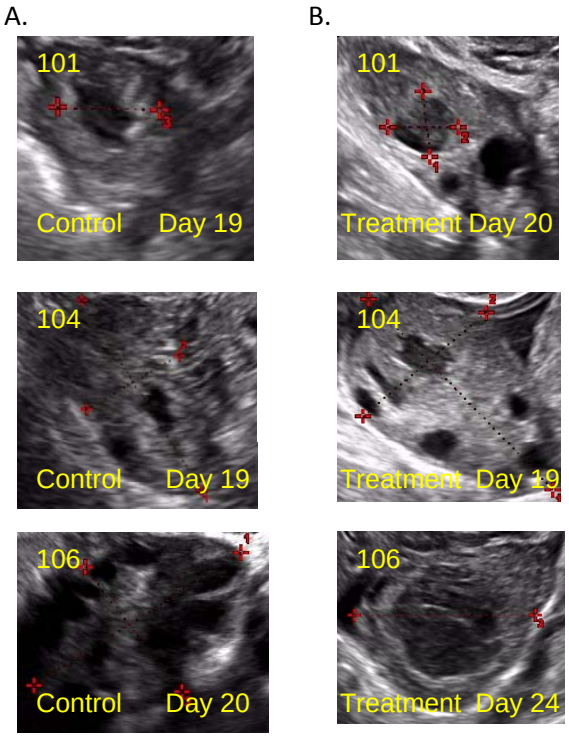


Results

Collapse of the follicle and/or demonstration of a corpus luteum during meloxicam treatment was consistently delayed until 48-72 hours after the LH surge. Maximal mean follicular diameter was greater in the treatment cycle compared to control. The morphology of the corpus luteum varied from the control to treatment cycles. Serum estradiol, progesterone and LH levels were not different between control and treated cycles.

Conclusions

Meloxicam treatment resulted in a delay in follicle collapse and/or corpus luteum formation and potentially caused dysfunctional ovulation. COX-2 may mediate the generation or activation of proteolytic enzymes involved in the release of ova. Inhibition of COX-2 has the potential of being an effective, reversible means to delay ovulation. Future, larger trials are planned to evaluate the use of COX-2 inhibitors for contraception.



A. Corpus Lutea from Control Cycles B. Corpus Lutea from Treatment Cycles. Note the typical serpiginous morphology of the control cycle corpus lutea.

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