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Indomethacin in vivo inhibits the enhancement of the progesterone secretion in response to gonadotrophin-releasing hormone by human corpus luteum.

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Abstract

Different prostaglandins (PG) seem to have luteolytic or luteotrophic function in relation to the phases of life of the human corpus luteum and in-vitro studies demonstrate a luteotrophic function of PGE2, PGI2, PGD2. The present study evaluated the effect of an inhibitor of prostaglandin synthesis on the hypophyseal and luteal responses to gonadotrophin-releasing hormone (GnRH) in women during the mid-luteal phase. Twenty normal menstruating women participated in the study. Two different protocols were applied. After monitored ovulation (day 0), eight patients were treated with indomethacin for 7 days and 12 untreated patients served as controls. To evaluate luteal progesterone production, blood samples were taken every 15 min for 2 h basally and after a bolus of GnRH (25 micrograms i.v.); eight control patients were also treated with indomethacin for one day, and the endocrine study was repeated. The long-term administration of indomethacin significantly reduced basal as well as luteinizing hormone (LH)-stimulated progesterone production by the corpus luteum in respect to controls. Short-term administration failed to influence basal progesterone production, but abolished its secretory response to LH. A luteotrophic role for prostaglandins in human luteal function is suggested.