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

Fulghesu AM, Lanzone A, Di Simone N, Nicoletti MC, Caruso A, Mancuso S.

Department of Obstetrics and Gynaecology, Università Cattolica del Sacro Cuore, Roma, Italy.

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.