

Steroidogenic capacity and oxidative stress-related parameters in human luteal cell regression

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The steroidogenic capacity and oxidative stress-related parameters of the human corpus luteum (CL) at different stages of the luteal phase were studied under basal and human chorionic gonadotropin (hCG)-stimulated conditions. Mid CL exhibited the maximal steroidogenic capacity, together with lower levels of glutathione and higher thiobarbituric acid reactants content, macrophage count, and superoxide dismutase (SOD) activity, compared to the late CL. Addition of hCG to luteal cell cultures led to a preferential increase in progesterone synthesis in the late CL compared to the mid CL, without changes in the oxidative stress-related parameters, except for the increased SOD activity found in the late CL. It is concluded that an oxidative stress condition is established in the mid CL, coinciding with the maximal steroidogenic capacity and macrophage infiltration of the organ, which be of relevance as one of the major mechanisms initiating CL involution in the human. © 1994.