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GLUCORTICOID RECEPTORS IN HUMAN FETAL BRAIN

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Glucocorticoid hormones play an important role in Central Nervous System (CNS) functions and development. Recently glucocorticoid receptors (GR) have been identified in different areas of the brain of experimental animals. We investigated the presence of GR in different areas of human fetal brain at different gestational ages. Glucorticoid binding sites were measured by dextran coated charcoal (DCC) technique using ^{3}H dexamethasone as radiolabelled ligand. Binding parameters were determined by the use of scatchard plots. GR were found to be present in the hemispheres, diencephalon and cerebellum of 6 fetuses at 12-13 weeks of gestational age. Receptor concentration ranged from 10 to 30 fmoles/mg protein. At 20-22 weeks of gestational age (3 fetuses) GR were present in the diencephalon, cerebellum and basal ganglia with values ranging from 19 to 54 fmoles/mg protein. Cerebral cortex in these fetuses was always found to be devoid of receptors. The estimated Kd was the same during development and ranged from 1 to 5 nM. Competition studies performed in two cases showed that neither diethylstilbestrol nor R-1881 competed for ^{3}H dexamethasone binding while R-5020 competed weakly.Our results show that GR are present in the CNS of human fetuses at very early gestational ages. During development GR appears to be retained in specific areas, i.e. diencephalon, cerebellum and basal ganglia while in the cortex they become undetectable.

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PITUITARY AND LUTEAL RESPONSIVENESS TO LH-RH.

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The pituitary and luteal responses to LH-RH and their related changes were studied in 11 normal women during luteal phase(LP-day +4 to +11).Blood samples were collected every 15 min for a basal period of 180 min and 120 min after i.v. administration of 25 μg of LH-RH.Progesterone(P) and LH were assayed by RIA.LH-RH elicited a secretory response of both hormones in all cases.ISA(integrated secretory area)of LH was greater after LH-RH administration respect to basal value($p < .001$) and Δmax(percent maximum increase)accounted to 475±36(S.E.)% of basal concentration.Luteal responsiveness varied from about 115-130% to more marked increments. ISA of P differed from basal to stimulated conditions($p < .05$) and Δmax was 166±14%.The analysis of temporal relationship between P and LH secretion showed that LH promptly rose after LH-RH,while the enhancement of P levels occurred within 31±19 min after LH rise. Then P levels reached a plateau,values of which were constantly above those observed in basal conditions.These changes appear to be time-related in a way similar to that found in studies on spontaneous pulsatility. The data from this paper show that P secretion by corpus luteum increases after LH-RH,such responses occurring by the discharge of gonadotropins and are consistent with the presence of close relationships between hypothalamic,pituitary and luteal functions.