

α -melanocyte-stimulating hormone and adrenocorticotropin in the regulation of glucocorticoid secretion during the perinatal period in sheep

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To determine the role of other ACTH-like peptides in the regulation of glucocorticoid secretion in fetal sheep, we examined the responses of the adrenal gland of fetal and newborn sheep to comparable single doses of α MSH (75 μ g) or ACTH (50 μ g) during the last third of gestation and the first month of postnatal life. α MSH first increased the plasma glucocorticoid concentration at 121-130 days of gestation [from 16 ± 1.5 to 36.9 ± 9 (SE) ng/ml]; the response to α MSH persisted on days 131-140 of gestation and during the first month after birth. ACTH first increased the plasma glucocorticoid concentration at 131-140 days of gestation and increased it further in the first month after birth (from 18.9 ± 3.6 to 97.0 ± 10 ng/ml). The observations that the adrenal glands of fetuses and newborn lambs responded to α MSH at a dose comparable to that of ACTH and that the response to α MSH in the fetus preceded the response to ACTH may indicate that adrenal receptors mature during fetal development. T