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EFFECTS OF NEONATAL ANDROGENIZATION AND NEONATAL
ORCHIDECTOMY ON PITUITARY GROWTH HORMONE
CELL COUNTS IN RATS

BY

AMORNVADEE VIHOKRATANA

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วิภาดา อภิสิทธิ์ ธีระกุล

SUMMARY

Newborn Fisher rats were divided into four experimental groups namely, the intact male, the neonatally orchidectomized male, the intact female, and the neonatally androgenized female rats. Neonatal orchidectomy and a single subcutaneous injection of 1.25 mg testosterone propionate (TP) were made within three days after birth. Six to eight pups from all four groups were allowed to stay with one mother. At weaning, 21 days old, rats were sorted into their particular groups. They were sacrificed at 1, 3 and 5 months old. The body weight, body length, and weights of adrenals, thyroids, uterus, ovaries, and pituitaries were recorded. The pituitaries were fixed in Bouin's solution, dehydrated, embedded in paraffin, sectioned horizontally at 3 to 4 micra in thickness and immunohistochemically stained with the triple antibodies method for growth hormone (GH) cells. It was found that the body weight and the percentages of the GH cells in normal male rats at all ages were higher than those of the females. Neonatal orchidectomy could reduce the percentage of GH cells and body weight from those in normal male rats whereas higher percentages of the GH cells and body weight over normal female levels were found in the neonatal androgenized female rats. The effects of neonatal TP treatments on the GH cell percentages seems to be permanent and may be caused by alterations of brain structures and functions in relation to the control of growth hormone synthesis and release similar to those of gonadotrophins.