

The effects of adrenal gland hormones depletion on thermal pain in animal model

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Abstract: The studies have shown that adrenal hormones may exert modulatory effects on pain perception in animals. To investigate the analgesic effects of adrenal gland hormones in response to thermal nociceptive stimulation in rats, the present study evaluated the effects of adrenalectomy on the thermal pain threshold. The rats were divided into control and adrenalectomized female and male groups. Adrenalectomy was achieved using a dorsal midline incision at the level of the first through third lumbar vertebrae and removal of adrenal gland. The tail immersion assay was used for evaluating the analgesic potential of adrenalectomy. To measure thermal pain threshold, the end of the tail was placed in a 50°C water bath and the pain threshold was measured as the time required to elicit a flick of the tail. Thermal pain threshold was measured 10 and 30 days after adrenalectomy and compared between adrenalectomized and control intact rats. Thermal pain threshold did not significantly change in male and female rats 10 and 30 days after adrenalectomy compared to control group. These data indicate that depletion of adrenal hormones 10 or 30 days after adrenalectomy does not significantly modulate the pain-induced behavioral responses related to thermal nociception.

Keywords: Adrenalectomy, Pain threshold, Rat