

12. EFFECT OF ADRENAL GLAND ALLOGRAFT ON MECHANICAL HYPERALGESIA INDUCED BY FREUND'S COMPLETE ADJUVANT IN RATS

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Background: Transplantation of adrenal medullary tissue into the CNS of the rat can reduce pain. However, whether adrenal gland allografted in peripheral tissue can also reduce pain is not well documented. The purpose of this study was to assess the potential for adrenal gland allografted into the peripheral tissue of the rat to reduce mechanical hyperalgesia induced by inflammation.

Methods: Fifteen male Wistar rats were divided into three groups; one for implantation of adrenal gland (AG), another for kidney (Kd), and the other for Sham operation (S). Tissues for transplantation were harvested from Sprague-Dawley rats. Two weeks after the surgery, inflammation was induced by injecting 0.05ml of Freund's complete adjuvant (FCA) into dorsum of rat's hind paw. Percent change in paw withdrawal threshold was assessed using automated Randall-Sellito algesiometer at 6 hr, 1, 2, 3, 7 and 14 days after injecting FCA. Data are presented as mean±SEM.

Results: Paw withdrawal thresholds against mechanical stimuli were 84.8±6.9, 112.1±4.6, 86.3±8.5, 93.6±7.4, 90.5±3.8, 96.9±3.8%, respectively, in AG group, and 71.3±10.8, 93.3±11.3, 79.1±10.3, 73.7±8.1, 62.6±6.4, 77.7±6.2%, respectively, in Kd group, 67.2±8.3, 88.1±11.7, 67.7±8.1, 69.6±8.2, 74.5±8.5, 81.2±6.6%, respectively, in S group. AG group showed decreased pain sensitivity compared with that of Kd and S groups, which was statistically significant at 7 and 14 days after injecting FCA ($p<0.05$).

Conclusion: This study indicates that the transplanted adrenal gland into the peripheral tissue may provide analgesic effect for a long time after it is transplanted in the rat.