Differential pattern of calcitonin gene-related peptide labeled terminals distribution among various regions of spinal cord dorsal horn after neonatal inflammation.

溫永銳

Ling QD;Chien CC;Wen YR;Fu WM;Sun WZ

摘要

Abstract

Neonatal peripheral inflammation has been shown to alter the neural circuitry of the spinal cord in adult rats. However, the temporal and spatial changes in the distribution of primary afferent terminals immediately following a neonatal inflammatory stimulus remains unclear. In the present study we found that intraplantar injection of complete Freund's adjuvant (CFA) or saline alone on postnatal day 1 (P1) causes CGRP immunoreactivity (CGRP-Ir) to gradually increase from P6 to P15 in laminae I and II, and return to baseline at P22. In laminae III and IV, CGRP-Ir markedly increased beginning at P6, and remained elevated thereafter. CGRP-Ir in lamina V remained unchanged throughout the observation period. These findings show that intraplantar CFA induces CGRP-fiber sprouting in laminae III and IV, but not in laminae I, II or V. We suggest that neonatal inflammation causes changes in the neural circuitry pattern in various regions of the dorsal horn during the critical neonatal development period in rats.