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Poster Presentation

The Role of Lymphocytes in Spinal Cord Injury and Pain; T Helper Cells (TH1 and TH2 Cells)

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Abstract

Lymphocyte is one of the subtypes of white blood cell (WBC) in immune system. Lymphocytes contain T cells, natural killer cells , and B cells. They are the head type of cell found in lymph, which for this reason the name “lymphocyte”. Lymphocytes can be recognized by their large nucleus. Infiltration of immune cells in the central nervous system (CNS) helps the start of chronic pain. CD4+ T cells infiltrate into the spinal cord, whereas B lymphocytes and NK cells are not locate in the spinal cord after L5 spinal nerve cross section. T cells infiltrate the sciatic nerve and dorsal root ganglion after nerve damage. Hyperalgesia and allodynia influenced by nerve damage are typicaly attenuated or abrogated in rodents missing T cells and the immunosuppressant rapamycin attenuates neuropathic pain in rats, partially due to an effect on T cells. Type 1 and 2 T helper cells (TH1 and TH2 cells) are subsets of T cells and have been demonstrated to have variety roles in neuropathic pain. TH1 cells help neuropathic pain behavior by secrete proinflammatory cytokines (interferon-γ (IFNγ) and IL-2), whereas TH2 cells block it by secreting anti-inflammatory cytokines (IL-13, IL-10 and IL-4). It is noteworthy that the condensation of IL-17 in the spinal cord of rats is rised after nerve damage.

Keywords: Pain, Spinal Cord Injury, Lymphocytes, T Helper Cells

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