Ruprecht-Karls-Universität Heidelberg

Fakultät für Klinische Medizin Mannheim

Dissertations-Kurzfassung

Induction of neurogenic cystitis, similar to interstitial cystitis, by dorsal root stimulation

Autor: Ying Li
Institut / Klinik: Urologische Klinik
Doktorvater: Prof. Dr. P. Alken

Interstitial cystitis is a challenging disease for urologists. Although the etiology of IC is still unknown, the mounting evidence suggests the primary involvement of neurogenic inflammation. In the present study we observed a significant inflammatory response after the stimulation of the lumbsacral dorsal roots. The epithelium loss, edema, ectasia and increased mast cell density were documented. Moreover, a large number of inflammatory cells were also noticed. Immunohistochemical staining demonstrates that most of the inflammatory cells are T cells, and majority of them are CD4+ positive. Smaller numbers of CD8+ cells are detected, as well as small numbers of B cells and a moderate number of cells of the monocyte/macrophage lineage. NGF play an important role in the development of inflammatory pain. NGF signaling is mediated via binding to its high affinity receptors TrkA. The concomitant upregulation of NGF and TrkA immunoreactivity in epithelium suggests that NGF, in addition to causing hyperalgesia, may play a critical role in the maintenance of mucosal integrity. NF-kappa B regulates the gene expression of a cytokines and mediators in inflammatory process.

Our study demonstrates that NF kappa B was particularly upregulated in epithelial cells and some infiltrating immune cells, which indicates the state of enhanced activation in these cells and their implication in the development of inflammation. The findings in our model have been also reported in the studies on IC patients. These findings provide a solid basis for the neurogenic inflammation as the pathogenesis of interstitial cystitis.