



Expression of neurotrophin-4/5 in *Streptococcus pneumoniae* meningitis

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ABSTRACT. This study aims to investigate the expression of neurotrophin-4/5 (NT-4/5) in the pallium and hippocampus in juvenile rats with intraventricular injection of *Streptococcus pneumoniae*. We used 40 SPF SD rats (3 weeks old, regardless of gender) in this study. We drew 50 μ L cerebrospinal fluid, and then, we injected 50 μ L normal saline and *S. pneumoniae* suspension (10^8 CFU/mL) in the brain pool (normal control group and infection group, respectively). After 24 h, the cerebrospinal fluid was collected for bacterial culture and white blood cell count. The immunohistochemical staining was conducted at the day 1, 2, and 5, and the expression of NT-4/5 in rat brain tissue was observed. Compared with the normal control group, NT-4/5 expression in the pallium and hippocampus of rats in the 24-h infection group was significantly increased (both $P < 0.05$). NT-4/5 expression in the pallium and hippocampus in the 5-day infection group was significantly

lower than that in the 24-h infection group ($P < 0.05$), and they were significantly higher than the normal control group ($P < 0.05$). After intraventricular injection of *S. pneumoniae*, the expression of NT-4/5 in the pallium and hippocampus in juvenile rats was increased, especially during early disease course.

Key words: *Streptococcus pneumoniae*; Neurotrophin-4/5; Juvenile rat; Pallium; Hippocampus