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The Relation of Cerebrospinal Fluid Nitric Oxide Levels to Prognosis and Differential Diagnosis
of Meningitis



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Abstract: This study was designed to investigate the role of nitric oxide (NO) in the differential diagnosis of bacterial, tuberculous and viral meningitis, and the relation between cerebrospinal fluid (CSF) NO levels and meningitis prognosis. Twenty patients with bacterial meningitis, 9 with tuberculous meningitis, 11 with viral meningitis/meningoencephalitis and 21 control patients were included in the study. CSF NO levels were investigated by measuring the levels of nitrite with a colorimetric test. Mean CSF nitrite levels were 3.9 ± 2.0 $\mu\text{mol/l}$ in bacterial meningitis, 2.7 ± 1.9 $\mu\text{mol/l}$ in tuberculous meningitis, 1.9 ± 1.7 $\mu\text{mol/l}$ in viral meningitis/meningoencephalitis and 1.4 ± 1.1 $\mu\text{mol/l}$ in control groups. The patients with bacterial and tuberculous meningitis had higher CSF nitrite levels than the control group ($p < 0.05$), but the patients with viral meningitis/meningoencephalitis did not ($p > 0.05$). However, there was no significant difference between bacterial and tuberculous meningitis or between tuberculous meningitis and viral meningitis/meningoencephalitis groups. Nitrite levels were correlated with white blood cell (WBC) counts ($r = 0.567$, $p = 0.000$), protein ($r = 0.548$, $p < 0.001$) and glucose levels ($r = -0.271$, $p < 0.05$). In conclusion, although the measurement of CSF nitrite levels is helpful for the differential diagnosis of meningitis, this parameter is not superior to other routine parameters. However, it may have a characteristic effect on prognosis.

Key Words: Meningitis, nitric oxide, sequela, prognosis

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