Abstract

Mortality of pneumococcal meningitis is 21 – 34 %. Prognosis will improve not thanks to new antibiotics, but to adjuvant strategies as shown for dexamethasone. It effects, however, not specifically and has relevant side effects.

Possible approaches at different stages of the disease are presented. Using pneumococcal cell wall components (PCW) in the animal model allows to study immunologic phenomena without interference of bacterial mechanisms. Inhibiting signaling by Tyrosin-dependend MAP-kinases reduces the inflammation. Tumor-necrosis-factor-alpha is a key-cytokine of inflammation. Intrathecally injected it results in minor inflammatory changes, where as it enhances bacterial meningitis dramatically. This underscores the important interaction between immunologic and bacterial mechanisms. Entry of leukocytes into brain is a key step of bacterial meningitis. To reduce this reduces further hallmarks of bacterial meningitis like brain edema. A very specific intervention in the cascade of bacterial meningitis probably ameliorates only parts of the changes. Therefore, unspecific therapies like induced mild hypothermia is more likely to be successful.

Dexamethasone in community acquired bacterial meningitis is established, further approaches are pending. In other forms of meningitis, however, there is no adjunctive therapy. Therefore, clinic characteristics of meningitis in infective endocarditis are developed.