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Bacterial meningitic deafness: historical development of epidemiology and cellular pathology

Abstract

Meningitis resulting in labyrinthitis and its associated hearing loss was first described by several authors during 1864 and 1865 but it was not integrated into the otological cannon until H. Knapp's publications of 1871. These reports were incorporated by St John Rossa in his textbook of 1873. Politzer, in 1882, included a fuller description of the clinical symptoms. Analysis of records of the etiologies of students in 90 schools for the deaf in North America from 1817 to 1893 showed that before the mid-1870s meningitis was rarely identified as an etiology (<1%) but by the 1880s it accounted for 10-20% of all etiologies, with male preponderance. Cellular pathology of meningitic labyrinthitis from the 1860s to the 1990s examined the ways in which bacteria invaded the inner ear. Human temporal bone studies were a major source of understanding of the pathological processes. Honda, in 1927, injected guinea pigs intracranially with live bacteria, and observed the effects on the membranous labyrinth. In 1988 Lebel's observation of the effectiveness of dexamethasone in preventing much deafness from meningitis stimulated the examination of the labyrinthine immune response. Immunological mechanisms can account for some of the variable morbidity of unilateral, progressive, less-than-severe deafness.