

## **SYNDROMIC LABORATORIAL DIAGNOSIS BY MULTIPLEX PCR - IMPACT ON THE CLINICAL AND EPIDEMIOLOGICAL OUTCOME OF MENINGITES IN THE STATE OF CEARÁ.**

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Meningitis and encephalitis are inflammatory processes of leptomeninges that may manifest with moderate or severe symptoms of infectious and non-infectious cause. Meningitis is a challenge for public health, since it is a disease that presents magnitude of occurrence and high mortality rate, especially when caused by bacterial agents. Clinical aspects alone can not differentiate the causes of meningitis and rapid diagnosis is critical to proper treatment, prevention and prognosis. The retrospective study aimed to describe a laboratory epidemiological survey of meningitis in Ceará from October 2018 to May 2019. Cerebrospinal fluid (CSF) samples sent to LACEN-CE were analyzed by syndromic approach using the Filmarray® Multiplex PCR system, which allows the simultaneous testing, directly from the sample, of 14 pathogens, being six bacterium (*E.coli* K1, *Haemophilus influenzae*, *Listeria monocytogenes*, *Neisseria meningitidis*, *Streptococcus agalactiae*, *S.pneumoniae*), seven viruses (Cytomegalovirus, Enterovirus, Herpes Simplex 1, 2, Herpes human 6, Parechovirus and Varicella zoster) and a yeast complex (*Cryptococcus neoformans/gattii*). The analytical phase occurs in approximately one hour with high sensitivity and specificity, providing accurate identification and rapid response. A total of 148 CSF samples were analyzed using the meningitis/encephalitis panel, of which 57.43%(85) were detectable. Among the 85 confirmed cases, 32,94%(28) were *S.pneumoniae*, 27.06%(23) *N.meningitidis*, 5.88%(5) *S.agalactiae*, 2.35%(2) *H.influenzae*, 1.17%(1) *E.coli*K1, 11,8%(10) Enterovirus, 2,35%(2) Cytomegalovirus, 9,41%(8) Human herpes virus type 6, 3.53%(3) Human herpes virus type 1, 1,17%(1) Human herpes virus type 2, and 1,17%(1) Varicella zoster. Of fungal origin, 1,17%(1) *Cryptococcusneoformans/gattii*. The various pathogens identified provide a new epidemiological profile for meningitis in Ceará. The use of the meningitis/encephalitis panel places the medical class into a new stage, where the etiological agent is no longer investigated, but rather, an investigation by infectious syndrome with different targets, impacting on immediate interventions in the control of outbreaks and epidemics, and especially in the re-evaluation and re adaptation of antibiotic therapy, impacting on a better clinical outcome, dehospitalization, rational use of antimicrobials, reducing costs and mainly improving patient safety.

**Keywords:** Meningitis, Encephalitis, Syndromic diagnosis, Rapid multiplex PCR.

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