Looking for Central Nervous System Involvement in Congenital Cytomegalovirus Infection: Is Lumbar Puncture Necessary?

Background and aim: Neuroimaging studies, including cranial ultrasound scans, cranial computerized tomography and/or magnetic resonance imaging, audiologic evaluation and funduscopic examination are well accepted non-invasive investigations for central nervous system (CNS) involvement in patients with congenital cytomegalovirus (CMV) infection. However, clinicians may have to deal with refusal when lumbar puncture for detection of CMV DNA in cerebrospinal fluid (CSF) is discussed with parents. Therefore, we wanted to look whether CMV polymerase chain reaction (PCR) on CSF had been useful until now in determining CNS involvement in newborns with congenital CMV infection in whom neuroimaging and sensorineural examinations had been performed.

Methods: We retrospectively reviewed charts of 34 newborns referred to our tertiary centre who had CSF prevalence for CMV PCR in the working-out of their congenital CMV infection. Results of CSF PCR, funduscopic examination, brainstem evoked response audiometry (BERA) and cerebral imaging (ultrasound and/or computerized tomography scan and/or magnetic resonance imaging) were collected.

Results: 7 patients (21%) showed positive CMV PCR on CSF. In 6 of them one or more abnormalities were found on neuroimaging (6/6) and/or BERA (2/6). In 1 baby classified as no signs of CNS involvement and positive CSF PCR, neurologic working-out had been limited to brain ultrasound and BERA only, while lumbar puncture had been traumatic.
Conclusion: CSF PCR is not likely to contribute to the diagnosis of CNS localization of congenital CMV infection at birth. The less invasive neuroimaging and sensorineural investigations seem sufficient to determine whether or not there is CNS manifestation of the disease.