HSV CNS Infection in Febrile Neonates

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 HSV infection in neonates is rare. Central nervous system (CNS) infection is seen in 50% of infants diagnosed with HSV infection. In the pre-antiviral era morbidity and mortality was high for infants with disseminated and CNS HSV infection. Treating with high dose intravenous acyclovir has reduced morbidity and mortality significantly, and early treatment has been associated with decrease in in-hospital death. The American Association of Pediatrics recommends CNS HSV infection should be considered with vesicular rash, or if fever, irritability, and abnormal cerebral spinal fluid (CSF) findings are present, especially with concurrent seizure activity during the time of year when enterovirus is not endemic. When febrile neonates present for evaluation of serious bacterial illness, it is not always clear to the provider who should be tested by HSV PCR and empirically treated for HSV infection with high dose acyclovir while awaiting results.

Therefore, an extensive review of the literature was complete to determine if there are any distinguishing features (indicators) that suggest or predict diagnosis of HSV in febrile neonates. PubMed MESH was searched using the keywords “Herpes Simplex”, and “length of stay”, “hospital charges”, “economics”, “unnecessary procedures”, or “epidemiology”. Limits were English language and infant/newborn age group. The search yielded five studies that were appraised. The studies that were included provided observational data on characteristics associated with HSV infection, showed that testing for HSV PCR in CSF is associated with increased length of stay (LOS) and hospital costs in the neonatal population, and that testing HSV PCR in CSF with pleocytosis along with concurrent empiric treatment with high dose acyclovir is cost-effective when patients with negative test results are discharged by hospital day #3. Four of the five studies were limited by the fact that they were retrospective in nature. However, the studies were all applicable to our patient population. Physicians should consider in infants less than 28 days, if infant is found to have vesicular lesions, CSF pleocytosis with mononuclear predominance, sick appearing, not only febrile but hypothermic, LFT abnormalities and/or seizures, the clinician should consider testing HSV PCR in CSF and start acyclovir empirically. Physicians will also have to take into account how long HSV PCR testing turnaround time for their institution. Further research is needed to elucidate predictive factors necessitating testing and treating. Ideally a multi-center randomized control trial in which both groups were tested for HSV PCR would yield superior data, but this may not be realistic because HSV infection in neonates is such a rare disease. Revised clinical guidelines are also needed to better reflect what we know about neonatal HSV infection in febrile neonates.

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