

O210

Oral Session

Bacterial pediatric infections

MEASUREMENT OF sCD14 – PRESEPSIN IS GOOD ALTERNATIVE TO MONITOR CHILDREN AFTER EXTERNAL VENTRICULAR DRAINAGE (EVD) IN CASE OF SUSPECTED BACTERIAL VENTRICULITIS/MENINGITIS

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Objectives

Ventriculitis/meningitis is a serious complication of external ventricular drainage (EVD). In the abstract we describe the use of broad range 16S rRNA PCR to identify the cause of infection and the use of sCD14 – presepsin to distinguish between true infection and contamination of sample.

Methods

We gathered data from 20 children that needed EVD. CSF for analysis of sCD14 and for broad range 16S rRNA gene PCR analysis was taken. Biomarker sCD14-ST was measured by a rapid chemiluminescent enzyme immunoassay on the fully automated PATHFAST® immunoanalyzer (Mitsubishi Chemical Medience Corporation, Tokyo, Japan) We took the values of sCD14 > 500 pg/mL as probable for ventriculitis and values > 1000 pg/mL as values that defined ventriculitis if we could identify the bacteria that caused the infection. We analyzed cerebrospinal fluid with PCR kit produced by Molzym, Germany that includes the degradation of human DNA and free bacterial DNA.

Results

6 children had sCD14 in CSF < 500pg/ml and no cause of infection identified with culture methods or with 16S rRNA gene analysis. 2 children had sCD14 >500pg/ml but <1000pg/ml. In one case we were able to identify bacteria with 16S rRNA PCR only and in the other with culture only. In 11 cases sCD14 was more than 1000pg/ml and the bacteria were present in CSF found with 16S rRNA PCR. In 7 cases culture was also positive with the same bacteria. But 16S rRNA PCR revealed additional bacteria in CSF in 4 cases. In two cases Gram positive bacteria besides Gram negative bacteria in culture were present. In 1 case with sCD14 > 1000pg/ml the CSF was culture positive but 16S rRNA negative. In 4 cases bacteria were identified with 16S rRNA gene PCR only (Table 1).

Conclusion

Marker of infection sCD14 – presepsin proved to be good marker to prove ventriculitis in children. In all the cases where sCD14 was positive, children had problems connected with bacterial ventriculitis. We could prove the cause of infection in 14 cases but 2 cases only culture positive. We think that we got contaminants and we could not identify the true cause of infection. 16S rRNA PCR revealed the viable bacteria in more cases and also more mixed infections. The use of sCD14 and 16S rRNA improves the diagnostic accuracy in the case of children with suspected bacterial ventriculitis. With 16S rRNA PCR we identified more viable bacteria and with sCD14 we could confirm that the viable bacteria were the true cause of infection not only contaminants.