

Serum Vitamin D Levels Unassociated with Cerebrospinal Fluid Cathelicidin or Outcomes in Childhood Bacterial Meningitis



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BACKGROUND:

In critically ill adults, low concentrations of serum 25-hydroxyvitamin D (25-OHD) have been associated with adverse outcomes. The antimicrobial protein cathelicidin is one of the possible mediators of this effect, as its expression is regulated by vitamin D.

AIM OF STUDY:

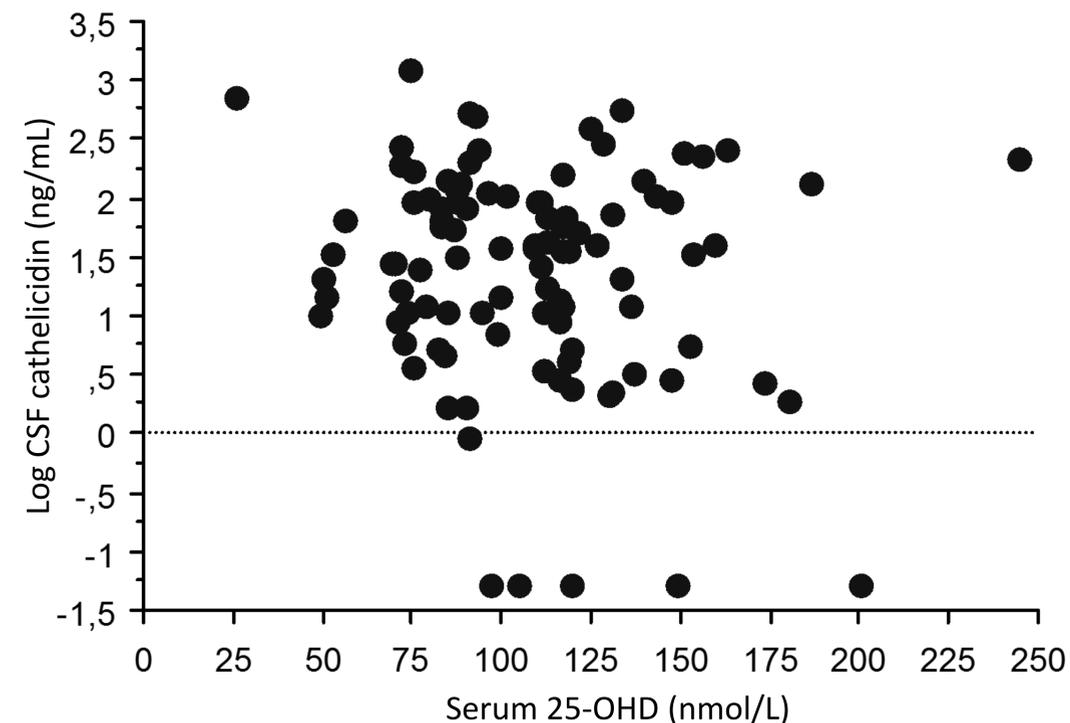
To investigate the serum 25-OHD concentration in children with bacterial meningitis (BM), and its association with cathelicidin concentrations in the cerebrospinal fluid (CSF) and the outcome of this disease.

METHODS:

Patient data were collected in 1996-2003, as part of a clinical trial on childhood BM in Latin America. The current study comprised of 140 children with an etiologically confirmed BM, of whom a frozen serum sample was available for further analysis. Serum samples had been collected on admission and/or during the treatment, and the 25-OHD concentrations were measured with an automated IDS-iSYS analyzer. If two or more samples were available from a patient, a mean value of the 25-OHD concentration was used. On admission CSF cathelicidin concentrations had previously been measured by ELISA in a subgroup of 99 patients.

CONCLUSION

In childhood BM, serum 25-OHD and CSF cathelicidin concentrations were unassociated. Obviously, their synthesis are independent, and unlike in critically ill adults, serum 25-OHD did not relate to outcomes of BM.



RESULTS:

The median serum 25-OHD concentration was 95.3 nmol/L, ranging from 19 nmol/L to 251 nmol/L. No association was detected between serum 25-OHD and the CSF cathelicidin concentration (Rho -0.066; p=0.51). Neither patient survival nor the occurrence of severe neurological sequelae correlated with serum 25-OHD (p=0.62 and p=0.86, respectively).

PATIENT CHARACTERISTICS AND OUTCOMES

Number of patients	140
Male sex (%)	83/140 (59)
Age, median months (IQR)	7 (8)
Serum 25-OHD, median nmol/L (IQR)	95.3 (40.0)
CSF cathelicidin, median ng/mL (IQR)	35.4 (94.2)
Outcome:	
Death (%)	22/140 (16)
Severe neurological sequelae (%)	12/113 (11)
Deafness (%)	22/97 (23)

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