connectivity is proposed, rather than loss of neurons, to explain the neurological and cognitive deficits in preterm babies.

CSF OBSTRUCTION AND MALABSORPTION IN CONGENITAL HYDROCEPHALUS

The relative contribution of CSF malabsorption and obstruction in three different etiological groups of neonatal high-pressure hydrocephalus (HC) was assessed in a study at University of Bonn, Germany, and University of Groningen, The Netherlands. CSF biomarkers, transforming growth factor beta-1 (TGF B-1), and aminoterminal propeptide of type 1 collagen (PC1NP), indicative of growth factor- and fibrosis-related CSF malabsorption, were assessed and compared in neonates with post-hemorrhagic HC (n=6), non-hemorrhagic triventricular HC (n=4) and spina bifida (SB) HC (n=12). CSF interleukin-6 (IL-6) cytokines, indicative of inflammation, were low and did not differ between groups. TGF B-1 concentrations were significantly higher in post-hemorrhagic HC cases (median 355 pg/ml) than in SB HC (median 103) and non-hemorrhagic HC (median 120); p=0.01 and 0.03, respectively. Median CSF PC1NP concentrations were significantly lower in SB HC (180 ng/ml) than in post-hemorrhagic HC (1,060 ng/ml); p=0.002. Neonatal posthemorrhagic HC is associated with high concentrations of CSF malabsorption-related biomarkers whereas SB and non-hemorrhagic HC have lower concentrations, indicating that CSF obstruction contributes more to the development of these cases than malabsorption. (Heep A, Bartmann P, Stoffel-Wagner B et al. Cerebrospinal fluid obstruction and malabsorption in human neonatal hydrocephaly. **Childs Nerv Syst** October 2006;22:1249-1255). (Respond: Dr Axel Heep, Department of Neonatology, University of Bonn, Adenauerallee 119, 53113 Bonn, Germany).

COMMENT. High TGF B-1 and PC1NP CSF concentrations in neonatal post-hemorrhagic HC are indicative of a fibrosis-related malabsorption as the cause of the HC, contrasting with relatively low levels of malabsorption biomarkers in SB and non-hemorrhagic triventricular HC. CSF obstruction, rather than malabsorption, plays a major role in the pathogenesis of high-pressure SB and non-hemorrhagic HC.

BRAIN TUMORS

BONE MINERAL DENSITY REDUCTION FOLLOWING IRRADIATION OF BRAIN TUMORS

Total body bone mineral density (TBBMD) was measured by X-ray absorptiometry in 46 brain tumor patients aged from 3.8 to 28.7 years (mean 14.9 y) at a mean of 6.4 y (range 1.4-14.8 y) after end of treatment for brain tumor. Tumors were astrocytic, grade 1, in 25 patients. Tumors were resected in 45 and biopsied in 1. Eleven received chemotherapy. Radiotherapy was cranial in 10 and craniospinal in 5. One third of the patients had low TBBMD (z scores < -2.0). Only combined craniospinal irradiation was significantly associated with low z scores, while cranial irradiation showed a borderline statistical association. (Pietila S, Sievanen H, Ala-Houhala M, et al. Bone mineral density is reduced in