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DIFFERENT MECHANISMS OF ENTRY OF BILIRUBIN (B) AND ALBUMIN (A) INTO YOUNG RAT BRAIN DURING CONTROL (C), DISPLACER (D), HYPERCARBIC (HC), AND HYPEROSMOLAR (HO) CONDITIONS. T.W.R. Hansen, S.Øyasæter, T.Stiris, D.Bratlid. Neonat. Res. Lab.,Depts. of Ped. Res., Surg. Res., and Peds., Rikshospitalet, U. of Oslo, Norway. The question of whether B enters the brain unbound or bound to A is of interest because bound B may not be toxic. We have studied the entry of ^{3}H-B and ^{125}I-A during C, D (sulfisoxazole 50mg/kg), HC (PCO_2 18-21 kPa, pH 6.9), and HO (serum osmolality 400mosm/l) conditions. B and A entry were studied in two separate subsets of rats to avoid problems with spectral overlap of the isotopes. Hyperbilirubinemia was created by infusing B for 1hr, while ^{125}I-A was given as a bolus dose at the start of the infusion period. Crude values for brain B and A were corrected for substance remaining intravascularly. Under C and D conditions, B enters the brain unaccompanied by A, i.e. unbound. Under HC, B enters the brain primarily unbound, but some may be A-bound. The increased entry of unbound B during HC may be due to increased blood flow. Under HO, B appears to enter the brain primarily bound to A.

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DOPPLER ULTRASONOGRAPHY: PREDICTION OF NEUROLOGICAL OUTCOME IN HYPOXIC-ISCHEMIC ENCEPHALOPATHY.

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Prediction by cerebral artery Doppler ultrasonography of neurological outcome in 20 term infants with hypoxic-ischemic encephalopathy (HIE) after perinatal asphyxia and in 20 normal babies (control group) was evaluated. The infants with HIE were divided in 3 groups, grated I to III, according to Sarnat's classification. Blood velocity of anterior and medial cerebral arteries were studied by range gated Doppler velocimeter. Pourcelot's resistance index (PI) and spectral analysis (SA) were considered. 2 infants, both with HIE, died in hospital and 18 were followed to 18-24 months. Adverse outcome was defined as cerebral palsy, developmental delay or death. No infant with normal SA and only a newborn with PI > 0.55 had adverse outcome. Of the 8 infants with PI< 0.55 and of the 9 infants with abnormal SA, 7 and 8 rispectively had an adverse outcome. The measurement of PI and SA were helpful for predicting neurological outcome after perinatal asphyxia (sensivity of 100%, specificity of 89%, accurancy of predicting outcome of 98%.

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BILIARY"ISOENZYME"OF ALKALINE PHOSPHATASE(BI-AP):SIMPLIFIED FULLY AUTOMATICALLY MEASUREMENT OF A HIGH SENSITIVE PARAMETER OF CHOLESTASIS IN CYSTIC FIBROSIS(CF)

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Cholestasis lead to the appearance of a new form of AP in the circulation.There is evidence that this cholestatic"isoenzyme" is a complex of several components(parts of liver cell membrane,immunoglobulins,LP-X) containing the AP-isoenzyme from liver.The literature shows different rates of BI-AP activities in cholestasis. In healthy controls it had never been detected.With a modification of our previously reported HPLC-method (Clin Chem 1986;32:816) for separating AP-isoenzymes we were able to standardize a sensitive and simple method for the detection of BI-AP. Method:Column equilibration in the same manner.Sample volume 400µl.Two step salt gradient:10 min 175 mmol/L LiCl,followed 5 min a linear increasing LiCl-concentration until 500 mmol/L was reached.Automation was obtained by mixing the column effluent with substrate (4-methyl-umbelliferyl-phosphate,final concentration 5 mmol/L).For detection a fluorescence detector was used.Results:It was possible to detect BI-AP in 30 healthy controls(newborns-adults),it accounted for 1-3% of the total serum AP-activity.13 out of 20 sera from CF-patients showed an elevated activity (5-30%).Only 8 out of the 13 cases showed elevated levels of AP,GGT,GOT,GPT,3 of bilirubin and 10 of serum bile acids.We therefore conclude that measurement of BI-AP is a highly sensitive test for the early diagnosis of cholestasis in CF.

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WITHDRAWN

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CHANGING PATTERN OF EARLY STOOL BACTERIAL COLONISATION?

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A prospective study of 45 infants, evenly divided for mode of delivery and type of feeding, was undertaken. Stools were obtained at 10 and 30 days(d) of age and specific culture media used to allow quantitative assessment of the following organisms: coliforms(C), enterococci,staphylococci,lactobacilli(L),bifidobacteria(B) and total anaerobes. L and B were further differentiated using gas liquid chromatography. The results were as follows:

	B	L	C	
No(%)infants colonised	9(20%)	19(42%)	38(84%)	10dN=45
Median log count **	10.1	8.55	8.88	
No(%)infants colonised	4(11%)	20(57%)	34(97%)	30dN=35
Median log count **	9.4	8.80	8.76	

** (when present) No influence of mode of delivery or feeding method was found. The results support the findings of two recent studies which suggested that an ecological change may have occurred in Northern Europe to the effect that bifidobacteria are no longer the predominant organism in the stool of the majority of normal infants during the first month of life.

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SLOW EXCRETION OF THE 4Z,15E-BILIRUBIN CONFIGURATIONAL ISOMER DURING PHOTOTHERAPY FOR CRIGLER-NAJJAR SYNDROME. Donzelli G.P., Agati G.*, Fusi F.*, Galvan P.,Dept. of Pediatrics,University and *Inst. of Quantum Electronics CNR, Florence, Italy.

Phototherapy (PT) is the only treatment of value in the long-term management of Crigler-Najjar syndrome type I (C-N.s.). At present (Proc.Natl.Acad.Sci.USA 78:1882, (1981)) it seems that the formation and elimination of the 4Z,15E-bilirubin configurational isomer (Z,E) is the major contributor in lowering bilirubin (BR) levels during PT for C-N.s..To verify this hypotesis, we have analyzed the serum BR isomer composition of a 15-years-old girl with C-N.s. during PT by HPLC method. We used green (Sylvania F20T12/G) and 'special' blue (Philips F20T12/BB) fluorescent lamps because of their different capacity to produce Z,E isomer. We report the steady-state serum concentrations of Z,E with either green and 'special' blue PT. The excretory rate for the Z,E isomer was estimated by measuring the Z,E concentration at the cessation of PT and after 2 hours (patient kept under red light).

	% Z,E	Z,E concentration [mg/dl]	
	steady-state	cessation of PT	2hr after PT
Green	9.2±.1	1.8±.2	2.0±.2
S.Blue	23.7±.5	4.6±.4	4.3±.4

Our result show that during the 2 hours period following the interruption of both green and 'special' blue PT the absolute serum amount of Z,E remains nearly constant. Moreover, before the beginning of PT, the patient had a significant serum level of the Z,E isomer (13.2% ± .2%) due to the blue light PT administered 12 hours before. These evidences show that in this patient the disappearance rate of Z,E isomer is too slow to account for the total BR excretion during PT.