

PEDIATRIC NEUROLOGY BRIEFS

A MONTHLY JOURNAL REVIEW

J. GORDON MILLICHAP, M.D., F.R.C.P., EDITOR

Vol. 24, No. 11

November 2010

PRE- AND PERINATAL DISORDERS

CEREBRAL PALSY AMONG TERM AND POSTTERM BIRTHS

The relation of risk of cerebral palsy (CP) with gestational age among term and postterm births was investigated by researchers at the University of Bergen, Norway, and the Epidemiology Branch, NIH, Durham, NC, using Norway's national health and insurance registries. Singleton children born in the years 1967-2001, with gestational age (based on first menstrual period) of 37 through 44 weeks and having no congenital anomalies, were followed through year 2005. Those surviving to at least 4 years of age (n=1938) were registered with CP.

Infants with the lowest risk of CP (prevalence 0.99/1000) were born at 40 weeks. The risk was higher with earlier or later delivery; prevalence at 37 weeks gestation was 1.91/1000 (relative risk (RR) of 1.9); prevalence at 38 weeks of 1.25/1000 (RR 1.3); prevalence at 42 weeks of 1.36/1000 (RR 1.4); and prevalence after 42 weeks of 1.44/1000 (RR 1.4). In a subset of 85 CP infants with gestational age based on ultrasound measurements at 37 weeks, these associations were stronger: prevalence at 37 weeks 1.17/1000 (RR 3.7); prevalence at 42 weeks of 0.85/1000 (RR 2.4). Identical RRs were obtained after adjustments for year of birth, infant sex, maternal age, parental education and immigrant status, and various socioeconomic factors. The prevalence of CP among births from 37 weeks and later decreased from 1.4/1000 in 1967-1971 to 0.7/1000 in 1997-2001, while the association of CP with gestational age remained constant over time. The risk of CP in term or near term infants is lowest at 40 weeks and highest at 37 and at 42 weeks or later. (Moster D, Wilcox AJ, Vollset SE, Markestad T, Lie RT. Cerebral palsy among term and postterm births. *JAMA* Sept 1, 2010;304(9):976-982). (Respond: Dag Moster MD, PhD, Department of Public Health and Primary Health Care, University of Bergen, PO Box 7804, N-5020 Bergen, Norway. E-mail: Dag.Moster@smis.uib.no).

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COMMENT. Epidemiological studies of the antecedents of CP demonstrate a strong association between premature birth and CP. In the classical description of cerebral palsy by Little (Little WJ, **Trans Obstet Soc Lond** 1862;3:283-344), the influence of abnormal parturition, difficult labor, premature birth and asphyxia neonatorum are emphasized. In the US National Institutes of Health Neurological Collaborative Perinatal Project (NCP), 27% of all cases of CP are attributed to low birth weight (<2501g) and short gestation (<36 weeks). (Ellenberg J, Nelson K. **Am J Dis Child** 1979;133:1044-1048). However, the majority of children with CP are of normal birth weight and term gestational age. The NCP data show that even infants of normal birth weight (>2500g) who are born prematurely (<36 weeks) are at higher risk of CP than those of normal weight born at term (>37 weeks). True prematurity is more important than intrauterine growth retardation in infants at risk of CP. (Freeman JM. Ed. **NIH Publication** 1985-1149)

Preterm birth is an established risk factor for CP, but the relevance of gestational age in the term range, where most of CP occurs, is rarely documented. In near-term infants, the risk of CP is highest with gestational ages slightly lower (37 or 38 weeks) or greater (42 and 43 weeks) than term. The interpretation of the Norway data is difficult for several reasons (eg. variation in prevalence with gestation over different time periods (Suzuki J et al. **No To Hattatsu** 2009; 41(4):279-283) and with different subtypes—spastic, dyskinetic, ataxic, or causes [Self L, Shevell MI. **J Child Neurol** 2010 Mar 11 (Epub ahead of print)]. Furthermore, CP is not a disease entity, but a general descriptive term for a non-progressive motor deficit of early onset.(Freeman, 1985). The data obtained from epidemiological studies represent only an association of risk factors with CP and are of limited clinical significance. As the authors conclude, the biological mechanisms for these risk factors must be determined before intervening clinically in the gestational age at delivery.

SEIZURE DISORDERS

CLINICAL CORRELATIONS OF EEG MIDLINE SPIKES

The frequency, clinical characteristics and outcome of children with isolated midline spikes in the EEG, and comparison of those with and without epilepsy, were analyzed by researchers at Children's Hospital, Boston, MA. In a total of 12,000 EEGs performed from 2005 to 2009, 69 had Cz-Pz discharges as the only epileptiform abnormality. Midline spikes were defined as focal epileptiform discharges localized to or of highest amplitude at one of the vertex scalp electrodes, Cz or Pz. Midline spikes were differentiated from transient vertex waves of sleep by their occurrence during the awake state as well as sleep. EEGs with discharges at additional sites were excluded. The prevalence of isolated midline spikes was 0.54%; 45 (65%) were in boys. Median age was 6 years (range, 4 mo -23 yrs); 2-3 yr-olds were the most common age group (16 cases), followed by the 4-5 yr-olds (11 cases). Forty-three (62%) had a history of seizures, and 26 (37%) without epilepsy presented with symptoms suggestive of seizures. *In the group with seizures*, Cz and Pz spikes occurred in 33% (14 of 43 cases); Cz spikes only in 49% (21 of 43 cases), and Pz spikes only in 18% (8 of 43 cases). Seizures were partial in 25 (58%); complex partial in 22 (51%), and focal myoclonic in 3. MRI was