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THE PREDICTIVE VARIABILES FOR THE STRUCTURAL EPILEPSY AFTER THE HYPOXIC-ISCHEMIC PERINATAL SUFFERING

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Introduction

The epilepsy (EP) is one of the leading features in children who have had hypoxic-ischemic perinatal brain lesions (PCL). It can often be associated with mental retardation and often begins at an early age.

Keywords

Epilepsy (EP), perinatal brain lesions (PBL),

Purpose

The aim of the study is to determine predictive variables in children who have had PBL depending on the severity of the disease, to assess the risk of developing EP.

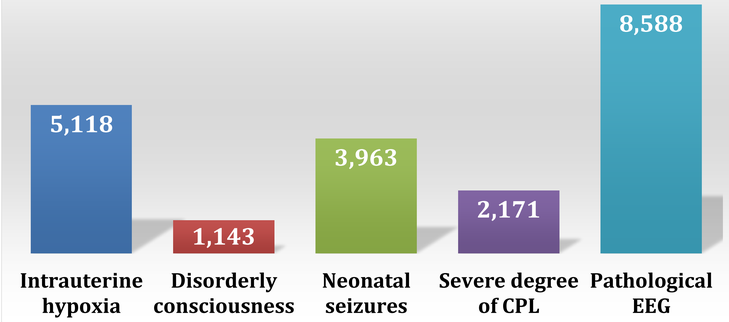
Material and methods

Prospective study over a period of 2 years, on a group of 614 children, who had moderate (50.5%) and severe (49.5%) PBL. EP was diagnosed in 259 (42.2%) cases, the onset between 3 months and 2 years of age (peak 3-6 months), in children with moderate (27%) and severe (57.6%) PCL. We assessed some determinant variables for EP in the child after PCL based on a study protocol.

Fig. 3. (A-D): (A, B): Axial magnetic resonance imaging (MRI) of a 5 day old full-term neonate at the level of internal capsule. (A) T1 weighted image (WI) shows normally increased signal intensity (SI) of the posterior limb of internal capsule relative to the basal ganglia and thalamus; (B) Corresponding T2WI shows normal hypointense signal of the posterior limb of internal capsule; (C, D): Just above (A, B), shows normal variation in SI of the basal ganglia and thalamus. (C) T1WI shows normally increased SI of the posterior limb of internal capsule (large black arrow) and ventrolateral thalamus (small black arrows). Note the moderate hyperintensity of globus pallidus, which is a normal variation (small white arrow). (D) Corresponding T2WI shows normal hypointense signal of the posterior limb of internal capsule [1].

Results

Fig. 1. Odds ratio for EP according to variables



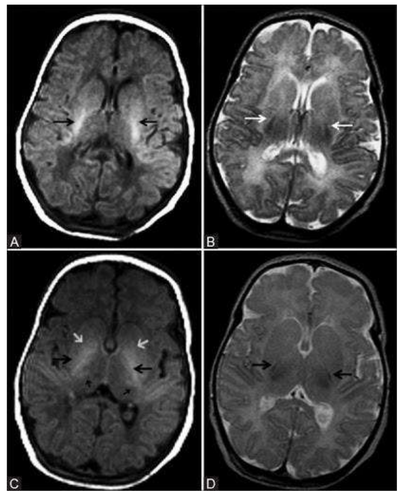
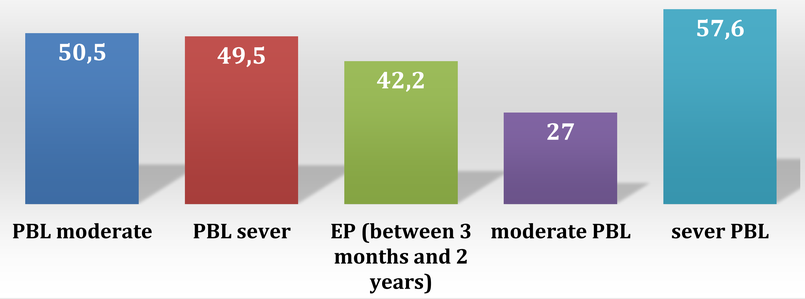


Fig. 3. [1]

According to a logistic regression calculation, we determined the following variables with major risk in the development of EP in the child after PBL: (1) intrauterine hypoxia (p <0.001), (2) severe degree of PCL at birth (p <0.006), (3) disorders of consciousness (p <0.003), (4) the presence of neonatal convulsions (p <0.004), (5) the pathological electroencephalographic pathway in the first two weeks after birth (p <0.000). The probability of developing EP in the child who underwent PCL in the case of the combination of the 5 variables is high (RP + = 99.7%).

Fig. 2. Frequency of epilepsy in children with PBL, %



Conclusions

The EP can develop at any age, especially in the child with severe PBL, the most vulnerable being the infant age. The association of predictive variables in different numbers and compositions connects various individualized results.

Bibliography

1. Binoj Varghese, Rose Xavier, VC Manoj, et al. Magnetic resonance imaging spectrum of perinatal hypoxic–ischemic brain injury. NEUROIMAGING. 2016; 3: 316-327.