

Periventricular-intraventricular hemorrhage epidemiology

Neonatal intraventricular hemorrhage is the most commonly diagnosed brain lesion in **preterm** infants. Approximately 15– 20% of **infants** who weigh less than 1500 g at birth will develop intraventricular hemorrhage ¹⁾.

The **incidence** depends on the method used for detection (many PIVHs are asymptomatic) and the population being evaluated. 540,000 **preterm infants** are born in the United States annually. 85,000 are very pre-term (<32 weeks GA) and 385,000 are late pre-term (34–36 weeks GA). 63,000 very low birth weight (<1500 grams) infants are born each year. Of the preemies weighing <1500 gm birth weight, 20–25% will suffer from a PIVH ^{2) 3)}.

In a 1978 study, PIVH was found by CT in 43% (20/46) of preemies with birth-weight < 1500 gm ⁴⁾

Mortality in infants with PIVH was 55%, compared to 23% in those without PIVH ⁵⁾

Ultra- sound (U/S) detected PIVH in 90% of 113 preemies <34 weeks gestation ⁶⁾.) (49% were grade III or IV).

The site of hemorrhage is age dependent. Between 24–28 weeks gestational age (GA) they occur over the body of the **caudate nucleus** and at 29 weeks GA or greater they arise over the head of the caudate nucleus ⁷⁾.

Of 1,777 very low birth weight infants born during the study period, 1,381 (77.7%) were examined. Of these, 289 (20.9%) had PIVH. The yearly distribution of cases showed a progressive decline in incidence, from 50.9% in 1991 to 11.9% in 2005 ($p < 0.0001$). The incidence of PIVH decreased across all weight ranges as well as at grades I/II and III/IV. Significant differences in antenatal corticosteroid use, gender (male), weight (< 1,000 g), hyaline membrane disease, mechanical ventilation, administration of surfactant, patent ductus arteriosus, and sepsis were found.

The incidence of PIVH in very low birth weight infants declined significantly during the study period ⁸⁾.

1. Statistically significant decrease in the prevalence and the severity of peri-intraventricular haemorrhage in the analysis carried out between 2005 and 2009 is a positive conclusion. A negative finding is the fact that the incidence of IV degree intraventricular haemorrhage, does not show a falling trend.
2. A fall in the number of deaths in the population of premature infants born in our Department can be the result of significantly improved medical care in the compared groups.
3. In both cohorts still insufficient percentage of pregnant women receiving prenatal corticosteroids in cases of high risk pregnancy, could be linked with unsatisfactory prophylactic perinatal care. This could lead to lack of improvement in the incidence of IV degree intraventricular haemorrhage.
4. The existing data base in Poland on the incidence of PVH/IVH in the risk group, is insufficient for comparison with European Union Countries data in the EuroNeoNet. The significance of this pathology on individual, social and economic levels, creates a need to carry out periodical analysis, at regional level, concerning its incidence, causes and effects ⁹⁾.

References

1)

du Plessis AJ (2009) The role of systemic hemodynamic disturbances in prematurity-related brain injury. J Child Neurol 24: 1127-1140. <https://doi.org/10.1177/0883073809339361>

2)

Murphy BP, Inder TE, Rooks V, Taylor GA, Anderson NJ, Mogridge N, Horwood LJ, Volpe JJ. Posthaemorrhagic ventricular dilatation in the premature infant: natural history and predictors of outcome. Arch Dis Child Fetal Neonatal Ed. 2002; 87:F37- F41

3)

Sheth RD. Trends in incidence and severity of intraventricular hemorrhage. J Child Neurol. 1998; 13:261-264

4) 5)

Papile LA, Burstein J, Burstein R, et al. Incidence and Evolution of Subependymal and Intraventricular Hemorrhage: A Study of Infants with Birth Weights Less Than 1,500 Gm. J Pediatr. 1978; 92:529-534

6)

Bejar R, Curbelo V, Coen RW, et al. Diagnosis and Follow-Up of Intraventricular and Intracerebral Hemorrhages by Ultrasound Studies of Infant's Brain Through the Fontanelles and Sutures. Pediatrics. 1980; 66:661-673

7)

Hambleton G, Wigglesworth JS. Origin of [intraventricular haemorrhage](#) in the [preterm](#) infant. Arch Dis Child. 1976; 51:651-659

8)

Marba ST, Caldas JP, Vinagre LE, Pessoto MA. Incidence of periventricular/intraventricular hemorrhage in very low birth weight infants: a 15-year cohort study. J Pediatr (Rio J). 2011 Nov-Dec;87(6):505-11. doi: doi:10.2223/JPED.2137. Epub 2011 Oct 20. PubMed PMID: 22015432.

9)

Helwich E, Rutkowska M, Szamotulska K, Adamska E, Sidor B. [Does the spectrum of periventricular haemorrhages in preterm infants change over the years? Comparison of two cohorts treated in 1998-2002 and 2005-2009.]. Med Wieku Rozwoj. 2011;15(3 Pt 2):368-375. Polish. PubMed PMID: 22253122.

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