RISK FACTORS ASSOCIATED WITH INTRAVENTRICULAR HEMORRHAGE IN VERY PREMATURE INFANTS

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BACKGROUND

Intraventricular hemorrhage (IVH) is one of the most serious problems in **preterm infants**. IVH has a multifactorial etiology that includes both prenatal and postnatal factors. The aim of our study is to analyze the incidence, severity and risk factors related with IVH.

METHODS

Retrospective observational study, including infants born before **32 weeks of gestational age (GA)** or with **birth weight (BW) <1500 g** admitted into the NICU of a tertiary hospital between 2010 and 2017. The analyzed variables were demographic, perinatal and clinical data. Univariate and two multivariable logistic regression models were performed. Since GA and BW are known to be associated with IVH, the second multiple logistic regression analysis was performed excluding these two parameters in addition to determine further important influential variables.

RESULTS: Data from 205 patients were included. Means of GA was 28.9 weeks (± 2.4) and BW was 1201 g (± 345).

Table 1: Demographic and clinical characteristics

	n=205 (%)	95% CI
Male	110 (53.7)	46.6 – 60.7
Vaginal delivery	59 (28.8)	22.3 – 35.2
Birth weight < 1000 g	59 (28.8)	22.3 – 35.2
GA < 27 weeks	36 (17.8)	12.1 – 23
Antenatal steroid	188 (91.7)	87.7 – 95.7
Chorioamnionitis	37 (18.1)	12.5 – 23.6
1 min Apgar score ≤ 3	20 (9.8)	5.5 – 14.1
PDA	66 (32.2)	25.6 – 38.8
IV Ibuprofen treatment	39 (19)	13.4 – 24.6
Mechanical ventilation in delivery room	54 (26.3)	20.1 – 32.6

** Two patients developed post-hemorrhagic ventricular dilatation.

Table 2: Univariate logistic regression

	OR	95% CI	p
GA < 27 weeks	7.25	3.10 - 17	<0.001
Birth weight < 1000 gr	3.97	1.84 – 8.56	<0.001
Vaginal delivery	3.38	1.56 – 7.31	0.002
Chorioamnionitis	3.47	1.51 – 8.0	0.003
1 min Apgar ≤ 3	9.5	3.3 – 27.4	<0.001
Intubation in delivery room	3.9	1.8 – 8.5	0.001
Oxygen requirements > 60% at NICU	6	2.56 - 14.11	<0.001
Invasive mechanic ventilation	4.05	1.72 – 9.51	0.001
PDA	4.99	2.27 – 10.94	<0.001
Early-onset sepsis	7.74	1.24 – 48.27	0.028

Table 3: Two multiple logistic regression models

Model 1: Perinatal risk factors	OR	95%CI	p
GA < 27 WOP	5.51	2.03 – 14.94	0.001
Vaginal delivery	3.4	1.37 – 8.46	0.008
1 min Apgar <3	7.71	2.16 – 27.46	0.002
Model 2: Early risk factors (excluding GA and BW)	OR	95%CI	p
PDA	3.13	1.25 – 7.82	0.015
Chorioamnionitis	2.84	1.07 – 7.56	0.036
Oxygen requirements > 60% at NICU	3.74	1.44 – 9.73	0.007

Conclusions

- ❑ The prevalence of IVH in this cohort is similar to the ones described in other studies.
- ❑ Prematurity is the most important risk factor for IVH. Other risk factors found in our study associated with IVH have already been described in the literature.