CONCLUSION: ESC successfully replaced the FNASS at our community hospital and has shown a clinically significant decrease in morphine requirements for infants experiencing opioid withdrawal.

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SPONTANEOUS RESOLUTION OF POST-HEMORRHAGIC VENTRICULAR DILATATION IN PRETERM NEWBORNS AND NEURODEVELOPMENTAL OUTCOMES

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BACKGROUND: Post-hemorrhagic ventricular dilatation (PHVD) is a serious complication of intraventricular hemorrhage (IVH) in preterm newborns and is associated with significant impairments. The natural evolution of PHVD and developmental implications of spontaneous resolution are not well established.

OBJECTIVES: To investigate the natural evolution of PHVD and compare neurodevelopmental impairments in newborns with (1) spontaneous resolution of PHVD; (2) persistent PHVD and (3) PHVD who underwent neurosurgical intervention.

DESIGN/METHODS: We conducted a multicenter retrospective cohort study of 5238 newborns born at ≤34 weeks' gestational age (GA) admitted to two tertiary Neonatal Intensive Care Units (NICU) between 2012 and 2020. Head ultrasounds (HUS) of 476 newborns with IVH grade ≥2 were reviewed to identify PHVD, defined as ventricular index (VI) >97th centile (p97) for GA and anterior horn width (AHW) >6mm on any HUS in the first 6 weeks of life. Newborns with PHVD were divided into three groups, Group 1: newborns with spontaneous resolution of PHVD, defined as the regression of both lateral ventricles below the VI and AHW thresholds, Group 2: newborns with persistent PHVD absent neurosurgical intervention and Group 3: newborns who underwent any neurosurgical intervention. Neurodevelopmental outcomes at 18 months corrected, obtained through chart review, were compared.

RESULTS: Of 108 newborns with PHVD, 88 survived to NICU discharge (mean GA 28.4 weeks, SD 2.8; median age at PHVD diagnosis 8.0 days, IQR 5.0-12.8). Overall, 34/88 (38.6%) newborns had spontaneous resolution of PHVD (Group 1). The median time between PHVD diagnosis and spontaneous resolution was 14.0 days (IQR 6.8-32.3) (Figure). In Group 3, the median time between PHVD diagnosis and the first neurosurgical intervention was 14.0 days (IQR 7.0-23.0). Group 1 had significantly smaller maximal VI (1.8, 3.4, and 11.1mm above p97, p<0.001) and AHW (7.2, 10.8, and 20.3mm, p<0.001) than Groups 2 and 3, respectively, and were less likely to have bilateral PHVD (OR 0.47, 95% CI 0.33-0.67) than Group 3. Neurodevelopmental outcome data at 18 month were available for 53/88 (60.2%) survivors (Table). Group 1 had lower rates of cerebral palsy (17.4% vs 45.8%; p=0.037), global developmental delay (17.4% vs 50.0%; p=0.018), epilepsy (4.3% vs 29.2%; p=0.048) and involvement of ≥3 allied health professionals (34.8% vs 70.8%; p=0.013) compared to Group 3.

CONCLUSION: Newborns with PHVD without spontaneous resolution are at higher risk for significant neurodevelopmental impairments despite neurosurgical interventions, which may be due to more prominent ventricular dilatation. Strategies aimed at mitigating the burden of impairments in patients without spontaneous resolution are needed.

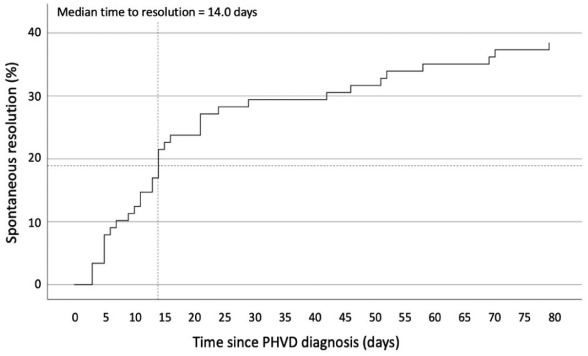

Figure. Kaplan-Meier curve showing the proportion preterm newborns (34/88, 38.6%) who had spontaneous resolution of PHVD as a function of time since PHVD diagnosis. Abbreviations: PHVD: post-hemorrhagic ventricular dilatation.

Table 1: Neurodevelopmental outcomes of newborns with PHVD

	Group 1 N=23	Group 2 N=6	Group 3 N=24
Outcomes			
Cerebral Palsy, all types N (%)	4 (17.4)*	2 (33.3)	11 (45.8)*
Quadriplegia, N (%)	2 (8.7)	0 (0)	7 (29.2)
Diplegia, N (%)	2 (8.7)	2 (33.3)	2 (8.3)
Hemiplegia, N (%)	0 (0)	0 (0)	2 (8.3)
Cerebral Palsy, GMFCS, N (%)			
GMFCS I-II	3 (13.0)	0 (0)	3 (12.5)
GMFCS III-V	2 (8.7)	1 (16.7)	7 (29.2)
Global Developmental Delay, N (%)	4 (17.4)*	0 (0)	12 (50)*
Cortical visual impairment, N (%)	0 (0)	0 (0)	4 (16.7)
Hearing loss, N (%)	1 (4.3)	0 (0)	2 (8.3)
Epilepsy, N (%)	1 (4.3)*	0 (0)	7 (29.2)*
Gavage, N (%)	1 (4.3)	1 (16.7)	4 (16.7)
Isolated language delay, N (%)	6 (26.1)*	0 (0)	1 (4.2)*
Isolated motor delay, N (%)	4 (17.4)	2 (33.3)	4 (16.7)
Allied health professional, N (%)			
None	5 (21.7)	2 (33.3)	4 (16.7)
1-2	10 (43.5)*	3 (50.0)	3 (12.5)*
≥ 3	8 (34.8)*	1 (16.7)†	17 (70.8)*†
Rehabilitation center, N (%)	7 (30.4)	2 (33.3)	14 (58.3)

PHVD: post-hemorrhagic ventricular dilatation, GMFCS: Gross Motor Function Classification System
*p<0.05 between Groups 1 and 3, †p<0.05 between Groups 2 and 3

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NEONATAL REGIONAL OUTREACH EDUCATION IN QUEBEC – A FORMAL NEEDS ASSESSMENT

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BACKGROUND: In Montreal (Quebec, Canada), newborn care is provided in either highly specialized hospitals for complex/critically ill patients or community hospitals for healthier patients. Community health care practitioners (CHP) have varying levels of comfort and competency in newborn care. Also, because of the unpredictable nature of obstetrics, CHP will need to manage critically ill newborns throughout their careers. Such high acuity, low frequency events can be difficult to manage even in experienced hands. Therefore, there is an imperative to develop a neonatal training curriculum for CHP, with an emphasis on critical newborns.

OBJECTIVES: As a first step, the objective of this study was to perform a comprehensive needs assessment of neonatal outreach education for CHP working in the Greater Montreal Area (Quebec, Canada).

DESIGN/METHODS: Using a mixed methods design (figure), the needs assessment was divided in 3 sections. First, the felt educational needs of the target population (CHP) using an online questionnaire. Second, through focus group discussion, the normative needs of the medical personnel who transport critical newborns. Third, the expressed educational needs of CHP through analysis of neonatal transport data between 2017-2020. Quantitative data was analyzed using descriptive statistics, including means and medians. Qualitative data was coded using conventional