

Post-hemorrhagic ventricular dilatation and hydrocephalus in preterm infants: a five-year retrospective cohort study from a tertiary referral center

Received: 17 May 2026

Accepted: 20 July 2026

Published online: 25 July 2026

Cite this article as: Barzegar H., Khorasani E., vardanjani H.M. *et al.* Post-hemorrhagic ventricular dilatation and hydrocephalus in preterm infants: a five-year retrospective cohort study from a tertiary referral center. *BMC Pediatr* (2026). <https://doi.org/10.1186/s12887-026-07398-x>

Hamide Barzegar, Elham Khorasani, Hossein Molavi vardanjani, Zahra Hashemi, Seyed Mostajab Razavinejad & Roya Oboodi

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

If this paper is publishing under a Transparent Peer Review model then Peer Review reports will publish with the final article.

Funding: No funding was obtained for this study

Authors' contributions: HB, H MV, ZH, SMR, RO concept and design, writing the draft, editing the final version. EK h collecting data, writing the draft, editing the final version. RO supervision. Final version was approved by all authors.

Acknowledgement: The authors would like to express their sincere gratitude to Shiraz University of Medical Sciences for providing the support and facilities necessary for conducting this research. This article is derived from the thesis of Dr. Elham Khorasani (Thesis No. 31088), submitted in partial fulfillment of the requirements for the degree of Pediatric Specialty at Shiraz University of Medical Sciences.

The authors also gratefully acknowledge the Center for Development of Clinical Research of Namazi Hospital for its support and Mr. Alimohammad Keshtvarz Hesam Abadi for his valuable statistical assistance.

References

1. Yang Z, Luo TT, Dai Y-L, Duan H-X, Chong C-M, Tang J. Pharmacological Strategies and Surgical Management of Posthemorrhagic Hydrocephalus Following Germinal Matrix-Intraventricular Hemorrhage in Preterm Infants. *Current Neuropharmacology*. 2025;23(3):241-55.
2. Leijser LM, de Vries LS. Intraventricular Hemorrhage and Post-Hemorrhagic Ventricular Dilatation. *Neonatal Brain Injury: An Illustrated Guide for Clinicians Counselling Parents and Caregivers*; Springer; 2025. p. 29-48.
3. Koutsouras GW, Koustov T, Zyck S, Krishnamurthy S. Pathophysiologic mechanisms and strategies for the treatment of post-hemorrhagic hydrocephalus of prematurity. *Child's Nervous System*. 2022;38(3):511-20. doi: 10.1007/s00381-021-05427-x.
4. Inder TE, Perlman JM, Volpe JJ. Preterm intraventricular hemorrhage/posthemorrhagic hydrocephalus. *Volpe's Neurology of the Newborn*; Elsevier; 2025. p. 777-846. e24.
5. Ellenbogen JR, Waqar M, Pettorini B. Management of post-haemorrhagic hydrocephalus in premature infants. *Journal of Clinical Neuroscience*. 2016;31:30-4.
6. Hashemi Z, Sarook MS, Oboodi R, Moghtaderi M, Mostafavi S. Prevalence and associated risk factors of intraventricular hemorrhage in preterm newborns in Southwestern Iran. *Child's Nervous System*. 2024;40(11):3563-9.
7. El-Dib M, Limbrick DD, Jr., Inder T, Whitelaw A, Kulkarni AV, Warf B, et al. Management of Post-hemorrhagic Ventricular Dilatation in the Infant Born Preterm. *J Pediatr*. 2020;226:16-27.e3. Epub 20200730. doi: 10.1016/j.jpeds.2020.07.079. PubMed PMID: 32739263; PubMed Central PMCID: PMC8297821.
8. Limbrick Jr DD, de Vries LS, editors. *New insights into the management of post-hemorrhagic hydrocephalus*. *Seminars in perinatology*; 2022: Elsevier.