

## ***Therapeutic Hypothermia for HIE: Putting Updated Guidance into Practice***

### **References**

Akula VP, Joe P, Thusu K, Davis AS, Tamaresis JS, et al. A randomized clinical trial of therapeutic hypothermia mode during transport for neonatal encephalopathy. *J Pediatr*. 2015 Apr;166(4):856-61.e1-2. doi: 10.1016/j.jpeds.2014.12.061. Epub 2015 Feb 12. PMID: 25684087.

Azzopardi DV, Strohm B, Edwards AD, Dyet L, Halliday HL, et al; TOBY Study Group. Moderate hypothermia to treat perinatal asphyxial encephalopathy. *N Engl J Med*. 2009 Oct 1;361(14):1349-58. doi: 10.1056/NEJMoa0900854. Erratum in: *N Engl J Med*. 2010 Mar 18;362(11):1056. PMID: 19797281.

Committee on Fetus and Newborn; Papile LA, Baley JE, Benitz W, Cummings J, Carlo WA, et al. Hypothermia and neonatal encephalopathy. *Pediatrics*. 2014 Jun;133(6):1146-50. doi: 10.1542/peds.2014-0899. PMID: 24864176.

Conway JM, Walsh BH, Boylan GB, Murray DM. Mild hypoxic ischaemic encephalopathy and long term neurodevelopmental outcome - A systematic review. *Early Hum Dev*. 2018 May;120:80-87. doi: 10.1016/j.earlhumdev.2018.02.007. Epub 2018 Feb 26. PMID: 29496329.

Faix RG, Laptook AR, Shankaran S, Eggleston B, Chowdhury D, et al; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Whole-Body Hypothermia for Neonatal Encephalopathy in Preterm Infants 33 to 35 Weeks' Gestation: A Randomized Clinical Trial. *JAMA Pediatr*. 2025 Apr 1;179(4):396-406. doi: 10.1001/jamapediatrics.2024.6613. PMID: 39992674; PMCID: PMC11851295.

Gluckman PD, Wyatt JS, Azzopardi D, Ballard R, Edwards AD, et al. Selective head cooling with mild systemic hypothermia after neonatal encephalopathy: multicentre randomised trial. *Lancet*. 2005 Feb 19-25;365(9460):663-70. doi: 10.1016/S0140-6736(05)17946-X. PMID: 15721471.

Gunn AJ, Gluckman PD, Gunn TR. Selective head cooling in newborn infants after perinatal asphyxia: a safety study. *Pediatrics*. 1998 Oct;102(4 Pt 1):885-92. doi: 10.1542/peds.102.4.885. PMID: 9755260.

Jacobs SE, Morley CJ, Inder TE, Stewart MJ, Smith KR, et al; Infant Cooling Evaluation Collaboration. Whole-body hypothermia for term and near-term newborns with hypoxic-ischemic encephalopathy: a randomized controlled trial. *Arch Pediatr Adolesc Med*. 2011 Aug;165(8):692-700. doi: 10.1001/archpediatrics.2011.43. Epub 2011 Apr 4. PMID: 21464374.

Kariholu U, Montaldo P, Markati T, Lally PJ, Pryce R, et al. Therapeutic hypothermia for mild neonatal encephalopathy: a systematic review and meta-analysis. *Arch Dis Child Fetal Neonatal Ed*. 2020 Mar;105(2):225-228. doi: 10.1136/archdischild-2018-315711. Epub 2018 Dec 19. PMID: 30567775.

Kumar J, Anne RP, Meena J, Sundaram V, Dutta S, Kumar P. To feed or not to feed during therapeutic hypothermia in asphyxiated neonates: a systematic review and meta-analysis. *Eur J Pediatr*. 2023 Jun;182(6):2759-2773. doi: 10.1007/s00431-023-04950-0. Epub 2023 Apr 4. PMID: 37014443.

Laptook A, Tyson J, Shankaran S, McDonald S, Ehrenkranz R, et al; National Institute of Child Health and Human Development Neonatal Research Network. Elevated temperature after hypoxic-ischemic encephalopathy: risk factor for adverse outcomes. *Pediatrics*. 2008 Sep;122(3):491-9. doi: 10.1542/peds.2007-1673. PMID: 18762517; PMCID: PMC2782681.

Laptook AR, Shankaran S, Tyson JE, Munoz B, Bell EF, et al; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Effect of Therapeutic Hypothermia Initiated After 6 Hours of Age on Death or Disability Among Newborns With Hypoxic-Ischemic Encephalopathy: A Randomized Clinical Trial. *JAMA*. 2017 Oct 24;318(16):1550-1560. doi: 10.1001/jama.2017.14972. Erratum in: *JAMA*. 2018 Mar 13;319(10):1051. doi: 10.1001/jama.2018.1657.. Khan AM [added]. PMID: 29067428; PMCID: PMC5783566.

Lemmon ME, Donohue PK, Parkinson C, Northington FJ, Boss RD. Parent Experience of Neonatal Encephalopathy. *J Child Neurol*. 2017 Mar;32(3):286-292. doi: 10.1177/0883073816680747. Epub 2016 Dec 8. PMID: 27932597; PMCID: PMC5309207.

Sagaser A, Pilon B, Goeller A, Lemmon M, Craig AK. Parent Experience of Hypoxic-Ischemic Encephalopathy and Hypothermia: A Call for Trauma Informed Care. *Am J Perinatol*. 2024 Apr;41(5):586-593. doi: 10.1055/a-1739-3388. Epub 2022 Jan 13. PMID: 35026852; PMCID: PMC9276837.

Shankaran S, Laptook AR, Ehrenkranz RA, Tyson JE, McDonald SA, et al; National Institute of Child Health and Human Development Neonatal Research Network. Whole-body hypothermia for neonates with hypoxic-ischemic encephalopathy. *N Engl J Med*. 2005 Oct 13;353(15):1574-84. doi: 10.1056/NEJMcp050929. PMID: 16221780.

Shankaran S, Laptook AR, Pappas A, McDonald SA, Das A, et al; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Effect of Depth and Duration of Cooling on Death or Disability at Age 18 Months Among Neonates With Hypoxic-Ischemic Encephalopathy: A Randomized Clinical Trial. *JAMA*. 2017 Jul 4;318(1):57-67. doi: 10.1001/jama.2017.7218. PMID: 28672318; PMCID: PMC5793705.

Simbruner G, Mittal RA, Rohlmann F, Muche R; neo.nEURO.network Trial Participants. Systemic hypothermia after neonatal encephalopathy: outcomes of neo.nEURO.network RCT. *Pediatrics*. 2010 Oct;126(4):e771-8. doi: 10.1542/peds.2009-2441. Epub 2010 Sep 20. PMID: 20855387.

Wu YW, Comstock BA, Gonzalez FF, Mayock DE, Goodman AM, et al; HEAL Consortium. Trial of Erythropoietin for Hypoxic-Ischemic Encephalopathy in Newborns. *N Engl J Med*. 2022 Jul 14;387(2):148-159. doi: 10.1056/NEJMoa2119660. PMID: 35830641; PMCID: PMC10542745.

Zanelli S, Buck M, Fairchild K. Physiologic and pharmacologic considerations for hypothermia therapy in neonates. *J Perinatol*. 2011 Jun;31(6):377-86. doi: 10.1038/jp.2010.146. Epub 2010 Dec 23. PMID: 21183927; PMCID: PMC3552186.

Zhou WH, Cheng GQ, Shao XM, Liu XZ, Shan RB, et al; China Study Group. Selective head cooling with mild systemic hypothermia after neonatal hypoxic-ischemic encephalopathy: a multicenter randomized controlled trial in China. *J Pediatr*. 2010 Sep;157(3):367-72, 372.e1-3. doi: 10.1016/j.jpeds.2010.03.030. Epub 2010 May 20. PMID: 20488453.