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Post-asphyxial aftercare and management of neonates in low- and middle-income countries: A systematic evidence synthesis

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Introduction: Effective post-resuscitation care is crucial for improving outcomes in neonates post-asphyxia. This review aimed to provide a comprehensive overview of post-asphyxial aftercare strategies and forms part of a supplement describing an extensive synthesis of effective newborn interventions in low- and middle-income countries (LMICs).

Methods: Evidence was generated by performing de novo reviews, updates to reviews via systematic searches, and reanalyses of studies conducted in LMICs from existing reviews.

Results: Sixty-one trials recruiting 5,046 term infants post-asphyxia were included across all intervention domains. Limited studies were available from LMICs related to fluid restriction, antiseizure medications, and early interventions to improve developmental outcomes. Our reanalysis of whole-body cooling trials in LMICs found effects on neonatal mortality and mortality or neurological disability in infancy differed significantly based on the care center and type of cooling device used. Pharmacological therapies for neuroprotection evaluated in 27 trials in middle-income countries had varied effects in neonates with encephalopathy. Majority of the trials (60%) focused on magnesium sulfate therapy and showed significant improvements in short-term mortality and morbidities.

Conclusion: The sample sizes of included trials were relatively small, and the certainty of evidence ranged from very low to moderate. Evidence on long-term survival and neurodevelopmental outcomes was limited. Further research on promising neuroprotective therapies and factors affecting their implementation in low-resource contexts is required. To reduce the high burden related to asphyxia in LMICs, this review underscores the need for a paradigm shift toward prevention, and strategies that emphasize improving antenatal and obstetric care.

Keywords: Birth asphyxia; Low- and middle-income country; Neonatal encephalopathy.

Biography

Oviya Muralidharan is a Clinical Research Project Assistant working on Dr. Zulfiqar A. Bhutta's research portfolio at the Center for Global Child Health, Hospital for Sick Children, Toronto, Canada. She is currently involved in evidence synthesis of neonatal interventions for a global newborn care series and evaluating a pilot integrated nutrition and immunization program implemented in Pakistan. Oviya has an undergraduate degree in Molecular Biology and Biotechnology with a focus in neuro-immunology from the University of Toronto. While at university, she led a quality-improvement project to support healthcare providers of Medical Assistance in Dying (MAiD) in Canada and was involved in curriculum development on Intimate Partner Violence for the World Psychiatric Association under the supervision of Dr. Donna Stewart.

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