



COOLING FOR BABIES WITH HYPOXIC-ISCHEMIC ENCEPHALOPATHY
RESFRIAMENTO PARA RECÉM-NASCIDOS COM ENCEFALOPATIA HIPÓXICO-ISQUÊMICA
ENFRIAMIENTO PARA RECIÉN NACIDOS CON ENCEFALOPATÍA HIPÓXICO-ISQUÉMICA

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Perinatal asphyxia is a problem worldwide, especially in the least technologically developed countries, affecting about 1 in 5 infants per 1,000 live births. Hypoxic-ischemic encephalopathy (HIE) is one of the most serious consequences of this picture, with a mortality rate of up to 60%, and at least 25% of those who survive, develop sequels in long-term development.

Unfortunately, there is still no specific treatment to reduce brain damage due to hypoxic-ischemic encephalopathy. However, from 2005 several randomized controlled clinical trials were conducted showing therapeutic hypothermia as a clinically viable strategy to minimize brain damage and mortality in neonates with hypoxic-ischemic encephalopathy.

Based on these studies, the Cochrane Database of Systematic Reviews in 2013 published a major review on the subject, entitled "Cooling for newborns with hypoxic-ischemic encephalopathy." The publication, available free on the website of Cochrane library through the site <http://www.thecochranelibrary.com>, has 112 pages and is presented in English. The authors, researchers from Australian and

American reference centers, conducted an extensive review on the subject including detailed analysis of randomized controlled trials (RCTs) identified by searching the database of the Oxford Database of Perinatal Trials, Cochrane Central Register of Controlled Trials, previous reviews including cross references, abstracts, conferences, symposia, manual expert reports and search in specialized journals.

The review objectives were to determine the effect of therapeutic hypothermia on mortality and neurodevelopmental clinically check the side effects of induced hypothermia in neonates with HIE and compare the criteria for inclusion in the hypothermia protocol and the cooling methods and periods. There were RCT comparing the use of induced hypothermia and standard of care in treating HIE as selection criteria for this review, with the primary outcome mortality and neurological sequels in long-term. There were 11 primary studies included with N=1505 newborns with HIE perinatal asphyxia.

The results presented in the systematic review showed that all 11 analyzed studies show newborns who had HIE moderate to severe benefited from induced hypothermia

with significantly reduced mortality and better neurobehavioral development during follow-up visits compared with the control group (RR 0.75 [95% IC 0.68-0.83]), but there were not statistically significant reductions shown in the incidence of blindness and deafness in the evaluated studies.

Eight of the analyzed studies reported an increased risk of sinus bradycardia below 80 beats/minute and hypotension (MAP <40 mmHg) during hypothermia therapy procedure, requiring medical intervention or suspension of hypothermia. The incidence of thrombocytopenia in the therapeutic group was also reported in 8 of 11 RCTs analyzed, showing considerable relative risk compared to the control group (RR1.21 [95% IC 1.05 to 1.40]). Other adverse effects reported in the studies were anemia, leukopenia/neutropenia, hypoglycemia, hypokalemia, oliguria, sepsis, pulmonary hypertension and hepatic dysfunction, but all without statistical significance when applied to meta-analysis. Despite the effects mentioned, the benefits of induced hypothermia overcome the risk of major complications, highlighting the early start before 6 hours of living in cases of moderate to severe hypoxic-ischemic encephalopathy due to perinatal asphyxia.

Although we increasingly robust evidence on the benefits of therapeutic hypothermia in reducing mortality and complications of HIE, the development of new studies to formulate guidelines and safe and effective institutional protocols to guide the implementation and expansion is needed of this practice in neonatal units. Such guidelines are important to guide the team in inclusion and exclusion criteria, methods of cooling and reheating, treatment time and patient monitoring. The nurse empowerment of evidence as a tool to underpin the assistance as a paramount importance to ensure sedimentation and efficacy of this practice in the NICU, particularly about the execution of the procedure and the newborn monitoring.

REFERENCE

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