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ORIGINAL ARTICLE

Care of the newborn with perinatal asphyxia candidate for therapeutic hypothermia during the first six hours of life in Spain☆

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Abstract
Introduction: The process of care and assistance from birth to the starting of therapeutic hypothermia (TH) is crucial in order to improve its effectiveness and prevent the worsening of hypoxic-ischaemic injury.
Methods: A national cross-sectional study carried out in 2015 by use of a questionnaire sent to all level III units on the care of the newborn ≥ 35 weeks gestation within the first hours of life after a perinatal asphyxia event. According to clinical practice guidelines, the quality of care was compared between the hospitals that carried out or did not carry out TH, and according to the level of care.
Results: A total of 89/90 hospitals participated, of which 57/90 performed TH. They all used resuscitation protocols and turned off the radiant warmer after stabilisation. All of them performed glucose and blood gas analysis, monitored the central temperature, put the newborn on a diet, and performed at least two examinations for the diagnosis of hypoxic-ischaemic encephalopathy. Greater than one-third (35%) of hospitals did not have amplitude-integrated electroencephalogram, and 6/57 were TH-hospitals. The quality of care among hospitals with and without TH was similar, childbirth being better in those that performed TH, and those with

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a higher level of care. Level IIIc hospitals had higher scores than the others. The TH-hospitals mentioned not always having neonatologists with experience in neurological assessment and interpretation of amplitude-integrated electroencephalogram (25%), or in brain ultrasound (62%).
Conclusions: In response to the recommendations of the asphyxiated newborn, there is a proper national health care standard with differences according to the level of care and whether TH is offered. More amplitude-integrated electroencephalogram devices are necessary, as well as more neonatologists trained in the evaluations that will be required by the newborn with hypoxic-ischaemic encephalopathy.

PALABRAS CLAVE
Hipoxia-isquemia;
Asfixia;
Recién nacido;
Hipotermia terapéutica;
España;
Horas de oro

Asistencia en España del recién nacido con asfixia perinatal candidato a hipotermia terapéutica durante las primeras seis horas de vida

Resumen
Introducción: El proceso asistencial hasta el inicio de la hipotermia terapéutica (HT) es crucial para mejorar su efectividad y prevenir el agravamiento del daño hipóxico-isquémico.
Método: Estudio transversal nacional realizado en 2015 mediante cuestionario a todas las unidades nivel iii sobre la asistencia al recién nacido (RN) con asfixia perinatal en las primeras horas de vida. Se comparó la calidad asistencial entre los hospitales que realizaban o no HT y según el nivel asistencial, de acuerdo a las guías de práctica clínica.
Resultados: Participaron 89/90 hospitales, 57/90 realizaban HT. Todos utilizaban protocolos de reanimación y apagaban la cuna tras estabilización. Fue universal realizar medición de glucemia y gasometría, monitorizar la temperatura, dejar al RN a dieta y realizar al menos 2 exploraciones para el diagnóstico de encefalopatía hipóxico-isquémica. El 35% no disponía de electroencefalograma integrado por amplitud; 6/57 eran hospitales que realizaban HT. La calidad asistencial entre los hospitales con/sin HT fue similar, siendo mejor la del parto en los que hacían HT, y la de aquellos con mayor nivel asistencial. El 25% de aquellos que realizaban HT no tenían neonatólogos con experiencia en la exploración neurológica o en la interpretación del electroencefalograma integrado por amplitud; ni en la realización de ecografía cerebral en el 62%.
Conclusiones: Atendiendo a las recomendaciones del RN asfíctico, existe un adecuado estándar asistencial nacional, con diferencias según el nivel asistencial y si realizan o no hipotermia. Son necesarios más equipos de electroencefalograma integrado por amplitud y formación de los neonatólogos en las evaluaciones que requerirá el RN con encefalopatía hipóxico-isquémica.

Introduction

The considerable medical, familial, social and legal ramifications of perinatal hypoxic-ischaemic encephalopathy (HIE) in term or late preterm newborns (NBs) make it a significant public health and social problem.[1]

In Spain, the Sociedad Española de Neonatología (Spanish Society of Neonatology) published standard guidelines for the use of therapeutic hypothermia (TH) in clinical practice in 2011,[2] and a group of experts developed an evidence-based clinical practice guideline for the integrated care of newborns with HIE in 2014.[3] The evidence on the effectiveness of TH in everyday clinical practice has shown outcomes that are better compared to those obtained in early clinical trials.[4] In all likelihood, of all the factors that contribute to this gap between efficacy and effectiveness, the most relevant are those at play in the first hours of life: adequate resuscitation in the delivery room, early initiation of TH, and control of factors that may aggravate the hypoxic-ischaemic insult before and during TH. However, there are hardly any published recommendations on the care delivered from birth to initiation of TH, a crucial window in which it is possible to act on these factors, enhancing the neuroprotective effects of hypothermia.[5–8]

The objectives of our nationwide study were: (1) to establish how level III neonatal units manage NBs with perinatal asphyxia in the first 6 h post birth, and (2) to determine whether there are differences between units that offer TH and units that transfer NBs with asphyxia to referral hospitals to receive this treatment, and between different care levels within tertiary care.