



ORIGINAL ARTICLE

# Stridor in neonates with hypoxic-ischaemic encephalopathy subject to selective cerebral or whole body hypothermia<sup>☆</sup>



Maria Arriaga Redondo<sup>a,\*</sup>, Ana Rodriguez Sánchez de la Blanca<sup>a</sup>,  
Alejandro Lowy Benoliel<sup>b</sup>, Nelia Navarro Patiño<sup>a</sup>, Sonia Villar Castro<sup>a</sup>,  
Dorotea Blanco Bravo<sup>a</sup>, Manuel Sánchez-Luna<sup>a</sup>

<sup>a</sup> Servicio de Neonatología, Hospital General Universitario Gregorio Marañón, Madrid, Spain

<sup>b</sup> Servicio de Otorrinolaringología, Hospital General Universitario Gregorio Marañón, Madrid, Spain

Received 16 June 2015; accepted 14 October 2015

Available online 21 July 2016

## KEYWORDS

Stridor;  
Hypothermia;  
Hypoxic-ischaemic  
encephalopathy

## Abstract

**Introduction:** Hypothermia treatment has improved the prognosis of asphyxiated neonates. Widely used, it has demonstrated to be safe without severe side effects. The aim of this article is to review the incidence of stridor amongst asphyxiated newborns treated with hypothermia in our unit.

**Methods:** Retrospective chart review of our patients.

**Results:** Stridor was presented in 7/75 (9.3%) of patients during hypothermia. Three received whole body hypothermia, 3 selective cerebral, and in one case both techniques were used. All cases required increased respiratory support.

**Conclusions:** Different mechanisms may be responsible for the appearance of stridor in patients with hypoxic-ischaemic encephalopathy (HIE). In our series the incidence of stridor was similar for the two hypothermia devices. To better understand these possible side effects of hypothermia, further prospective studies (which should include laryngoscopy) are needed.

© 2015 Asociación Española de Pediatría. Published by Elsevier España, S.L.U. All rights reserved.

<sup>☆</sup> Please cite this article as: Redondo MA, Blanca AR, Benoliel AL, Patiño NN, Castro SV, Bravo DB, et al. Estridor en neonatos con encefalopatía hipóxico-isquémica sometidos a tratamiento con hipotermia cerebral selectiva o corporal total. An Pediatr (Barc). 2016;85:128–133.

\* Corresponding author.

E-mail address: [maria.arriaga@salud.madrid.org](mailto:maria.arriaga@salud.madrid.org) (M. Arriaga Redondo).

**PALABRAS CLAVE**

Estridor;  
Hipotermia;  
Encefalopatía  
hipóxico-isquémica

## Estridor en neonatos con encefalopatía hipóxico-isquémica sometidos a tratamiento con hipotermia cerebral selectiva o corporal total

**Resumen**

**Introducción:** El tratamiento con hipotermia ha mejorado el pronóstico de los neonatos con asfixia perinatal. Ampliamente utilizado, este tratamiento ha probado ser seguro sin efectos adversos graves. No descrito en los estudios multicéntricos iniciales, el estridor se ha reportado recientemente como un efecto secundario de este tratamiento. El objetivo de este artículo es revisar la incidencia de estridor respiratorio entre los neonatos con encefalopatía hipóxico-isquémica (EHI) sometidos a tratamiento con hipotermia en nuestra unidad.

**Métodos:** Estudio retrospectivo revisando las historias de todos los pacientes sometidos a hipotermia en nuestra unidad.

**Resultados:** Siete de 75 (9,3%) pacientes presentaron estridor; 3 recibieron hipotermia corporal total, 3 cerebral selectiva y un caso recibió ambas técnicas. Todos los casos requirieron aumento del soporte respiratorio.

**Conclusión:** Diferentes mecanismos pueden estar implicados con la aparición de estridor en los pacientes con EHI sometidos a hipotermia, en nuestra serie de casos no encontramos relación ni con el método de hipotermia activa empleado ni con la fase del tratamiento. Para intentar comprender mejor este posible efecto adverso de la hipotermia es necesario desarrollar estudios prospectivos que incluyan laringoscopia.

© 2015 Asociación Española de Pediatría. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

**Introduction**

Hypoxic-ischaemic encephalopathy (HIE) is a major cause of neurologic injury in neonates. Its incidence in developed countries is of one to two cases per thousand live births.<sup>1</sup>

The impact of hypoxic-ischaemic disease is significant in terms of both mortality and long-term morbidity, as 25% of those affected go on to have long-term neurodevelopmental sequelae.<sup>2</sup> Hypoxic-ischaemic encephalopathy is the cause of approximately 20% of cases of cerebral palsy in children.<sup>3</sup>

In the past decade, early cooling of the body temperature by 3–4 °C initiated within 6 h of life and for 72 h, applied to the whole body or selectively to the head, has been shown to improve the outcomes of these patients, significantly reducing mortality and moderate to severe neurodevelopmental pathology at 18, 22 and 24 months with a number needed to treat of 6–7.<sup>2,4,5</sup> Long-term follow-up studies have shown that this improvement is sustained.<sup>6,7</sup>

Review studies that have analysed the side effects of therapeutic hypothermia implemented in controlled intensive care unit settings by teams with extensive experience and training in the management of these patients have only found a significant increase of sinus bradycardia and thrombocytopenia, and no clinically significant adverse effects.<sup>1,2,4,8</sup>

A small-sample study of safety outcomes<sup>9</sup> reported that stridor was more frequent in patients treated with whole body hypothermia, with an incidence of 29%, than in patients with HIE not treated with hypothermia ( $P = .01$ ).

A more recent study<sup>10</sup> reported five cases of stridor in patients treated with whole body hypothermia, which corresponded to an incidence of 9.6%.

In this study, we have reviewed the cases of stridor that developed in patients with HIE treated with whole-body or selective brain hypothermia.

**Materials and methods**

We conducted a descriptive retrospective study by analysing the medical records of all patients born at 36 or more weeks' gestation that received a diagnosis of hypoxic-ischaemic encephalopathy and were treated with active hypothermia in our hospital following the recommendations of the Sociedad Española de Neonatología (Spanish Society of Neonatology).<sup>11</sup> Our main criterion for initiating active hypothermia was the degree of clinical encephalopathy, assessed by the alertness of newborns with a history of risk factors in the perinatal period and clinical manifestations of neonatal pathology.

We included all patients found for the January 2010–December 2014 period, who amounted to 71. We excluded patients with airway malformations or primary neuromuscular disorders.

We obtained the approval of the Clinical Research and Ethics Committee prior to conducting the study.

**Results**

Between January 2010 and December 2014, a total of 71 patients born at 36 or more weeks' gestation underwent treatment with hypothermia for HIE, of whom 43 were treated with selective brain cooling and 28 with whole body hypothermia.

Seven newborns developed stridor during their stay, which corresponded to an incidence of 9.8%. [Tables 1 and 2](#) describe the general characteristics of the patients and the treatment with hypothermia.

All of the patients had moderate encephalopathy except for case 3, who had severe encephalopathy, and case 7, who had mild-to-moderate HIE (we included this case because the patient had a significantly altered level of alertness).

Download English Version:

<https://daneshyari.com/en/article/4144943>

Download Persian Version:

<https://daneshyari.com/article/4144943>

[Daneshyari.com](https://daneshyari.com)