

Resposta Gemini:

Here is the corrected text:

NEONATAL HYPOTHERMIA AND NEONATAL ANOXIA

Introduction

Therapeutic hypothermia is a neuroprotective strategy that reduces mortality and disability of newborns with hypoxic-ischemic encephalopathy from perinatal asphyxia. The therapy should start within the first six hours after birth and consists of reducing the body temperature of neonates (average of 33°C–34°C) for 72 hours.^{4,6,7} Hypothermia reduces brain metabolism by approximately 5% for every 1°C decrease in body temperature, which delays the onset of cellular anoxic depolarization.⁸

Objective

The objective of this study is to report two clinical cases describing the effects of neonatal hypothermia in infants with perinatal asphyxia and their motor development in a follow-up program after hospital discharge.

Methods

This is a retrospective case report involving two children diagnosed with hypoxic-ischemic encephalopathy due to neonatal asphyxia who underwent a hypothermia protocol in the Neonatal Intensive Care Unit (NICU). Data regarding the prenatal, perinatal, and postnatal periods were collected from the children's medical records. Subsequently, an interview with the guardian was conducted using a semi-structured maternal history guide, including general information about the mother and infant. The children were followed up at the high-risk outpatient clinic and evaluated using the Hammersmith Neurological Examination (HINE), a motor development assessment using the Alberta Infant Motor Scale (AIMS), and the Denver II screening test. The instruments were administered by trained evaluators according to the recommendations in the assessment manuals. The study was approved by the University's Research Ethics Committee.

Case Description

A newborn female was born by cesarean section at 37 weeks of gestational age, weighing 3,055 g and measuring 46.5 cm in length. The patient presented Apgar scores of 5 and 6 at the first and fifth minutes, respectively, requiring a cycle of PPV. The infant developed respiratory distress; thus, 20% oxygen was delivered for one hour, followed by three hours of CPAP. After four hours of life, the patient presented worsening respiratory distress and cyanosis in the extremities. The patient was subsequently intubated; during intubation, she presented an episode of hyperextension of the upper limbs, internal rotation of the wrists, and a seizure. Due to tests indicating perinatal asphyxia, the therapeutic hypothermia protocol was initiated, involving cooling until the patient reached the target temperature (32°C–35°C). The patient was monitored every 20 min and remained in hypothermia for 74

hours. The infant was diagnosed with late neonatal sepsis in the Neonatal Intensive Care Unit and required six days of antibiotics. A transfontanellar ultrasound was performed, indicating a reduction of the sulci and diffuse hyperechogenicity. After seven days, a cranial magnetic resonance (CMR) demonstrated sequelae of a severe perinatal hypoxic-ischemic event. The patient remained 12 days in the NICU and 10 days in the ward, being discharged on a diet of breast milk and formula. At the neurological examination upon discharge, the patient presented mild generalized hypotonia and primitive reflexes that were present and symmetrical (search reflex, palmar and plantar grasp, complete Moro, and tonic-cervical reflex). Currently, the child has a chronological age of three years and three months, and evaluations conducted by the physiotherapy team at the pediatric outpatient clinic demonstrate motor development within the normal range for her age.

Conclusion

The cases presented involved two children diagnosed with hypoxic-ischemic encephalopathy due to perinatal asphyxia who received a therapeutic hypothermia protocol for 74 hours with strict monitoring of body temperature. They were followed up at the outpatient clinic by a multidisciplinary team, and assessments of motor development indicated that both patients had normal motor development. The results obtained are favorable for the use of the neonatal hypothermia protocol as a neuroprotective intervention in infants with perinatal asphyxia, minimizing and preventing sequelae in motor development.

Explanation of Corrections

Title

- **NEONATAL HIPOTERMIA** changed to **NEONATAL HYPOTHERMIA**: Corrected U.S. English spelling.

Introduction

- **strategy who** changed to **strategy that**: Corrected pronoun usage; "that" refers to an inanimate strategy.
- **mortality, and disability** changed to **mortality and disability**: Removed the comma in a simple two-item list.
- **newborns'** changed to **newborns**: Corrected the possessive; the original intended "disability of newborns," not "newborns' disability."
- **encephalopathy Hypoxic-Ischemic from asphyxia perinatal** changed to **hypoxic-ischemic encephalopathy from perinatal asphyxia**: Corrected capitalization (generic terms are lowercase) and word order to standard medical terminology.
- **33°C - 34°C degrees** changed to **33°C–34°C**: Corrected formatting. Replaced the hyphen with an en dash (–) for the range, removed the space before °C, and removed the redundant word "degrees."
- **72 hours^{4,6,7}** changed to **72 hours.4,6,7**: Placed the period before the citations, following standard academic style.

- **5 %** changed to **5%**: Corrected unit formatting (standard style often omits the space before %).
- **temperature of the body** changed to **body temperature**: Made the phrasing more concise.
- **which delayed** changed to **which delays**: Changed to present tense ("delays") to describe a general scientific fact.

Objective

- **The goal of this study reported** changed to **The objective of this study is to report**: Corrected the verb tense and structure to clearly state the paper's aim in the present tense.
- **babies** changed to **infants**: Used a more formal, academic term ("infants") and maintained consistency.
- **...and motor development...** changed to **...and their motor development...**: Clarified the sentence structure to show the report covers both the effects *and* the development.

Methods

- **submitted to** changed to **who underwent**: Replaced the passive phrasing with a more formal and active verb ("underwent").
- **baby** changed to **infant**: Maintained consistent terminology.
- **followed up in** changed to **followed up at**: Corrected the preposition ("followed at the clinic").
- **[AIMS]** changed to **(AIMS)**: Standardized the use of parentheses for acronyms, consistent with (NICU) and (HINE).
- **were administered... and were administered...** changed to **were administered by trained evaluators according to...**: Rewrote the sentence to avoid repeating "were administered" (Rule: "Avoid repeating the same word twice in a sentence").

Case Description

- **Case description** changed to **Case Description**: Corrected capitalization to match the title-case style of other section headings.
- **Newborn, woman** changed to **A newborn female**: Used standard medical terminology ("female") and improved sentence flow.
- **3.055g** changed to **3,055 g**: Added the standard comma for thousands and a space between the number and the unit.
- **46,5cm** changed to **46.5 cm**: Changed the European decimal comma to a U.S. decimal point and added a space before the unit.
- **length of 46.5 cm** changed to **measuring 46.5 cm in length**: Improved flow and precision.
- **an Apgar score of 5 and 6 in** changed to **Apgar scores of 5 and 6 at**: Corrected to plural "scores" since two are listed, and used the correct preposition "at."
- **evolved with** changed to **developed**: Used a more standard and precise medical term.
- **was delivery** changed to **was delivered**: Corrected the grammatical error (passive voice verb form).

- **1 (one) hour** and **3 (three) hours** changed to **one hour** and **three hours**: Spelling out numbers one through nine per the rules; the parenthetical numbers were redundant.
- **After 4 hours** changed to **After four hours**: Spelled out the number per the rules.
- **...life the patient...** changed to **...life, the patient...**: Added a comma after the introductory phrase.
- **presence of cyanosis** changed to **cyanosis**: Made the phrasing more concise.
- **...extremities, being intubated and during intubation...** changed to **...extremities. The patient was subsequently intubated; during intubation...**: Corrected a run-on sentence and dangling modifier by splitting the idea, clarifying the sequence of events.
- **seizure** changed to **a seizure**: Added the article "a" for grammatical correctness in the list.
- **tests which showed** changed to **tests indicating**: Used a more concise and formal term.
- **turning off the crib** changed to **involving cooling**: Replaced the informal jargon "turning off the crib" with a more formal description of the process.
- **32° - 35°C** changed to **(32°C–35°C)**: Corrected the range formatting (en dash, no space before °C) and added parentheses for clarity as a target range.
- **20min.** changed to **20 min**: Added a space and removed the period, following standard SI unit formatting.
- **74 (seventy-four) hours** changed to **74 hours**: Removed the redundant parenthetical spelling.
- **The baby** changed to **The infant**: Maintained consistent terminology.
- **6 (six) days** changed to **six days**: Spelled out the number per the rules and removed redundancy.
- **"Transfontanellar ultrasound"** changed to **A transfontanellar ultrasound**: Removed unnecessary quotes, corrected the spelling ("Transfontanellar"), and corrected capitalization (not a proper noun).
- **Cranial Magnetic Resonance (CMR)** changed to **cranial magnetic resonance (CMR)**: Corrected capitalization, as this is a generic medical procedure.
- **a sequelae** changed to **sequelae**: Corrected the grammatical error; "sequelae" is the plural form (the singular is *sequela*), which is appropriate here.
- **"hypoxic-ischemic event"** changed to **hypoxic-ischemic event**: Removed unnecessary quotes.
- **(NICU)** changed to **NICU**: Removed parentheses as the acronym was already defined in the Methods section.
- **diet by breast and milk formula** changed to **diet of breast milk and formula**: Corrected the preposition for clarity.
- **mild hypotonia generalized** changed to **mild generalized hypotonia**: Corrected the adjective order.
- **palm and plantar handgrip** changed to **palmar and plantar grasp**: Used standard medical terminology.
- **...and tonic-cervical reflex present)** changed to **...and tonic-cervical reflex):**: Removed the redundant word "present," as it was already stated outside the parentheses.
- **3 years and 3 months** changed to **three years and three months**: Spelled out the numbers per the rules.

- **will demonstrate** changed to **demonstrate**: Corrected the verb tense; the evaluations *currently* show this, so present tense is required.
- **for the age** changed to **for her age**: Made the phrasing more precise.

Conclusion

- **encephalopathy hypoxic-ischemic** changed to **hypoxic-ischemic encephalopathy**: Corrected to standard medical terminology and capitalization.
- **74 hr** changed to **74 hours**: Maintained consistency with "hours" used elsewhere in the text.
- **...team and in the assessment...** changed to **...team, and assessments...**: Added a comma to connect the two clauses correctly and improved flow.
- **“neuroprotective intervention”** changed to **neuroprotective intervention**: Removed unnecessary quotes.
- **babies** changed to **infants**: Maintained consistent, formal terminology.
- **...asphyxia minimizing and preventing...** changed to **...asphyxia, minimizing and preventing...**: Added a comma to correctly set off the participial phrase.
- **sequelae in children's motor development** changed to **sequelae in motor development**: Made the phrasing more concise and formal.