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Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines for the Management of Patients With Positional Plagiocephaly: Executive Summary

BACKGROUND: Positional plagiocephaly is a common problem seen by pediatricians, pediatric neurologists, and pediatric neurosurgeons.

OBJECTIVE: To create evidence-based guidelines for the treatment of pediatric positional plagiocephaly.

METHODS: This guideline was prepared by the Plagiocephaly Guideline Task Force, a multidisciplinary team made up of physician volunteers (clinical experts), medical librarians, and clinical guidelines specialists. The task force conducted a series of systematic literature searches of PubMed and the Cochrane Library, according to standard protocols for each topic addressed in subsequent chapters of this guideline.

RESULTS: The systematic literature searches returned 396 abstracts relative to the 4 main topics addressed in this guideline. The results were analyzed and are described in detail in each subsequent chapter included in this guideline.

CONCLUSION: Evidence-based guidelines for the management of infants with positional plagiocephaly will help practitioners manage this common disorder. The full guidelines documents can be located at <https://www.cns.org/guidelines/guidelines-management-patients-positional-plagiocephaly>.

KEY WORDS: Infants, Methodology, Nonsynostotic, Plagiocephaly, Positional plagiocephaly

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INTRODUCTION

Accurate diagnosis and treatment of infants with positional plagiocephaly are important because it is a common finding seen by multiple pediatric specialties, including general pediatricians, neurosurgeons, neurologists, plastic surgeons, and physical therapists.

METHODS

Literature Search

The task force worked with medical librarians to determine appropriate search terms and to create search strategies for each guideline chapter. PubMed and the Cochrane Library were searched for literature published between 1966 and October 2014. The topic-specific search strategies can be found within the appendices of each chapter (<https://www.cns.org/guidelines/guidelines-management-patients-positional-plagiocephaly>).^{1–4}

Quality of Evidence and Strength of Recommendations

The quality of evidence was rated with the use of an evidence hierarchy developed by the Joint Guidelines Committee of the American Association of Neurological Surgeons (AANS) and Congress of Neurological Surgeons (CNS) for each of the 4 different study types (ie, therapeutic, diagnostic, prognostic, and clinical assessment). Additional information on the classification of evidence and methodology can be located here: <https://www.cns.org/guidelines/guideline-procedures-policies/guideline-development-methodology>.

RECOMMENDATIONS

1. Clinical examination is recommended for the diagnosis of plagiocephaly, and imaging is rarely necessary, except in cases in which clinical diagnosis is equivocal. Strength of recommendation: Level III—low clinical certainty

2. In cases in which the clinical examination is equivocal, 3-dimensional surface imaging or stereophotogrammetry is recommended for the assessment of infants with plagiocephaly without synostosis.
Strength of recommendation: Level II—moderate clinical certainty
3. In cases in which the clinical examination is equivocal, surface imaging (computer-based topographical scans) or stereophotogrammetry is recommended for the assessment of infants with plagiocephaly without synostosis.
Strength of recommendation: Level III—low clinical certainty
4. Only for infants in whom x-rays or ultrasound is non-diagnostic, a computed tomography scan is recommended for definitive diagnosis.
Strength of recommendation: Level III—low clinical certainty
5. Repositioning is an effective treatment for deformational plagiocephaly. However, there is Class I evidence from a single study and Class II evidence from several studies that repositioning is inferior to physical therapy and to use of a helmet, respectively.
Strength of recommendation: Level I—high clinical certainty (repositioning is inferior to physical therapy); Level II—moderate clinical certainty
6. Physical therapy is recommended over repositioning education alone for reducing prevalence of infantile positional plagiocephaly in infants 7 weeks of age or older.
Strength of recommendation: Level I—high clinical certainty
7. Physical therapy is as effective for the treatment of positional plagiocephaly as a positioning pillow, but physical therapy is recommended over the use of a positioning pillow to ensure a safe sleeping environment, in compliance with American Academy of Pediatrics (AAP) recommendations.
Strength of recommendation: Level II—moderate clinical certainty
8. Physical therapy is recommended over repositioning education alone for reducing prevalence of infantile positional plagiocephaly in infants 7 weeks of age.
Strength of recommendation: Level I—high clinical certainty
9. Physical therapy is as effective for the treatment of positional plagiocephaly and recommended over the use of a positioning pillow to ensure a safe sleeping environment and comply with American Academy of Pediatrics (AAP) recommendations.
Strength of recommendation: Level I—high clinical certainty
10. Helmet therapy is recommended for infants with persistent moderate to severe plagiocephaly after a course of conservative treatment (repositioning and/or physical therapy).
Strength of Recommendation: Level II—uncertain clinical certainty
11. Helmet therapy is recommended for infants with moderate to severe plagiocephaly presenting at an advanced age.
Strength of Recommendation: Level II—uncertain clinical certainty

CONCLUSION

Evidence-based guidelines for the treatment of positional plagiocephaly are necessary and important to deal with this common disorder. Systematic literature searches were conducted according to standard protocols, identifying a total of 396 abstracts on 4 topics relevant to positional plagiocephaly. Sufficient evidence was found to create 11 recommendations, 3 of which were Level I.

Disclosures

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Disclaimer of Liability

This clinical systematic review and evidence-based guideline was developed by a physician volunteer task force as an educational tool that reflects the current state of knowledge at the time of completion. The presentations are designed to provide an accurate review of the subject matter covered. This guideline is disseminated with the understanding that the recommendations by the authors and consultants who have collaborated in its development are not meant to replace the individualized care and treatment advice from a patient's physician(s). If medical advice or assistance is required, the services of a physician should be sought. The proposals contained in this guideline may not be suitable for use in all circumstances. The choice to implement any particular recommendation contained in this guideline must be made by a managing physician in light of the situation in each particular patient and on the basis of existing resources.

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