Early Newborn Positioning: Preventative Healthcare Information for Pediatric Providers

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Purpose

“Early Newborn Positioning” encourages pediatric healthcare providers to (1) proactively position all newborns starting at birth, (2) provide early parent/caregiver education, and (3) screen for skull deformity at each well-child visit. The goal is to reduce the incidence of infant skull deformity and improve children’s long-term health outcomes.

Skull deformity is an international pediatric healthcare concern. This report includes introductory information on deformational plagiocephaly (DP) and congenital muscular torticollis (CMT), current guidelines related to skull deformity and positioning, and teaching ideas for parents/caregivers of newborns.

The framework for early newborn positioning is based on the report “Nonsynostotic Deformational Plagiocephaly: Understand, Screen, and Intervene”¹ and on recommendations by the American Academy of Pediatrics (AAP) and Bright Future related to infant sleep environment²,³ and screening for skull deformity.⁴ The AAP/Bright Futures periodicity table “Recommendations for Preventative Pediatric Health Care” is an important resource for pediatric clinical practices.⁵

Background

Infant skull anatomy includes large bone plates, facial bones, fibrous sutures and fontanels, as well as associated cranial and neck musculature, ligaments, synovial joints, tendons, and fascia. Healthy skull growth and development is determined by the health and integrity of these structures, growth of the brain, varying maturation rates of sutures, and individual factors which may be extrinsic (environmental), intrinsic (genetic), or a combination.

Infant skull structures are very malleable. Infants are at risk for deformity if placed for prolonged periods in positions that put pressure on moldable skulls. A primary deformity of a flat spot usually includes a secondary deformity of a compensatory bulge. Some infants are more susceptible to skull deformity than others. In many cases a deformed head shape will normalize as the brain grows, however in some cases the head shape does not normalize. Disorders must be ruled out such as hydrocephalus, or craniosynostosis (stenosed cranial sutures) which require early intervention and surgery to release the sutures to allow for proper brain growth.

The movement of a child’s skull bones is individual, can be unpredictable, uneven, and as mentioned, based on various contributing factors. Clinicians must not assume that a child’s skull deformity is related to improper positioning by the parents/caregivers because we do not know all contributing factors. However, early positioning may reduce some cases of deformity that are related to improper positioning.

Positioning to prevent or improve DP is most effective starting at birth while the head grows rapidly and bones are moldable. Neurocranial growth is largely determined by growth of the brain and reaches 90% of adult head size by age 12 months; growth slows and cranial sutures are generally fused at age 24 months.⁶

By age 12 months, an infant’s head circumference has increased about 12cm. Head circumference measurement is not an indicator of head shape deformity, either synostotic or nonsynostotic, because in both types the absolute head circumference may be normal despite the skull being misshapen.⁷
Early recognition of DP and CMT is important for several reasons aside from aesthetics, primarily to rule out other cranial and neck disorders. Intervention is best while the skull bones are still malleable between ages 3-18 months, cranial growth slows at age 32 weeks, and some insurance providers require helmet intervention before age 12 months.

To screen for DP, visualize alignment, level, and proportion of head, face, and neck.

DP is characterized by skull asymmetry (deformation, “flat spot”) and can include craniofacial and neck asymmetry. DP may be noted at birth; parents may be advised “not to worry” and to wait because the skull will reshape as the child grows. While true in many cases, some children do not achieve a symmetrical skull shape even with months of proper positioning.

CMT is a common pediatric musculoskeletal condition related to neck muscle damage occurring prenatal or postnatal. A shortened sternocleidomastoid (SCM) muscle causes the head to tilt toward the side of the affected muscle, with neck rotation to the opposite side. CMT is often involved with DP because the infant has decreased head and neck mobility which interfere with movement milestones. The SCM muscles are connected to the epicranial muscles and can torque the skull.

International evidence-based research correlates DP and CMT with negative long-term health outcomes related to growth and development, vision, hearing, and oral health. Correlation does not imply causation and AAP does not acknowledge causal links.
AAP Recommendations

- Safe sleep environment and positioning: place baby in a supine sleep position for SIDS risk reduction; provide parent/caregiver education on safe sleep guidelines and tummy time to minimize developmental plagiocephaly.²,¹¹
- Skull deformity screening: screen at each well-child visit up to 1 year of age, and provide parent/caregiver preventive counseling (anticipatory guidance) on positioning. If baby has DP, position baby for 2-3 months; if no improvement is seen, refer to a craniofacial specialist for diagnosis and subsequent management (ie, helmet, surgery).⁴,⁵

Based on these recommendations and the physiology of the newborn skull, it seems prudent to start positioning all newborns at birth as a standard of care, and provide earlier parent/caregiver education at the same time. Early positioning may prevent some cases of DP.

Parent/caregiver newborn positioning education

Many parents/caregivers are not aware of the benefits of positioning, or the implications of DP. They do not know that positioning may prevent certain cases of DP caused by environmental or positional factors.

Teaching parents of newborns at hospital discharge allows them an opportunity to practice positioning with their healthcare provider, usually a nurse with whom they have developed a trusting relationship.

Effective parent education programs include adult learning principles and utilize kinesthetic, visual, and auditory teaching methods, with demonstration, practical examples and written instructions. First-time parents may need detailed information about typical newborn care, with discharge instructions provided in writing. Parents are sometimes nervous to move or position their baby’s head, so demonstration and practice with positive, encouraging feedback are important. Ask questions and provide anticipatory guidance and feedback.

Below are examples of questions and anticipatory guidance for parents based on the format used in AAP Bright Futures guidelines.

Sample questions. Ask parents about baby’s sleep environment: What do you know about the relationship of sleep position and SIDS? Have you heard about “tummy time”?

Anticipatory guidance. Provide specific instructions: Always place your baby “safe to sleep” on his back, not on his tummy or side. Show me how you place your baby to sleep. Let’s practice positioning baby’s head while he is asleep, and practice tummy time while he is awake.

Search for positioning ideas, videos and information from experts on newborn movement and tummy time.

Some ideas to encourage early movement in newborns include:

- Dress baby in clothes that protect but allow freedom to move head, shoulders and arms. Reduce the use of blankets and swaddles that restrict movement.
- During feeding and holding, alternate right and left sides, and reduce the time confined in a baby seat during mealtimes.
- During playtime and tummy time, place baby on a firm surface (ie, play mat, rug) and alternate supine/prone positions. Alternate the placement of toys at baby’s side to encourage turning and reaching movement. If baby has a preference for one side, attract attention to the other side.
- During sleep, counterposition baby on alternate ends of the crib, and alter baby’s head position.
- During travel, be aware of head position and reduce the time confined in car seats.
Document positioning and parent education; check to see if administration of a health risk assessment or education tool can be coded to recover costs. Documentation for quality improvement may include peer review, for example two nurses may demonstrate screening for skull deformity and provide one another with appropriate feedback.

Conclusion

Early positioning, education, screening and intervention are key in pediatric skull deformity. Start newborn positioning at birth and instruct parents/caregivers at hospital discharge or by the first well-child visit. Nurses on the front lines of healthcare are the ideal pediatric healthcare providers to start early newborn positioning and coordinate preventative healthcare education. It is our hope that nurses will adopt early newborn positioning as a standard of care to improve children’s futures.

References


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