Torticollis
“It’s Not Just About the Neck”

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Assumption and Objectives

- Participants are generally familiar with Torticollis
- Objectives:
  - Identify three non-neck consequences of torticollis
  - Identify three motor skills that may be affected by torticollis
  - Identify at least two diagnoses that may complicate torticollis outcomes
  - List at least three reasons to continue treatment with babies until independent ambulation
Torticollis

- Congenital Muscular Torticollis is a positional deformity evident shortly after birth.
- A result of position in utero.
- Characterized by tightness of the Sternocleidomastoid muscle with a lateral head tilt with rotation of neck to opposite side.
- May be accompanied by other neurological or musculoskeletal conditions.

Muscles Most Commonly Involved
Asymmetries in babies

- Identified by Nuysink et al. (2008) – differential diagnosis in first 6 months of life
  - 12% of all newborns noted asymptomatic positional preference
  - Important to evaluate to determine prognosis and intervention strategy
  - Determine to be Idiopathic or Symptomatic

Idiopathic Asymmetry

- Uncertain etiology, most likely environmental
- Most common cause of Plagiocephaly
- Schertz et al. demonstrated that infants with Torticollis are at risk for early developmental delay
- Van Vlimmeren et al. Stated “unequal cervical posture can affect shape and movement of different body parts which warrants systematic diagnostic management of asymmetry in infants”
Symptomatic Asymmetry

• Disorders with measurable incidence
  - Congenital Dysplasia of the Hip
  - Perinatal fracture of the clavicle
  - Congenital Muscular Torticollis
  - Obstetric brachial plexus palsy
  - Central nervous system disorders
  - Craniosynostosis

• Additional with insignificant incidence
  • Congenital malformations, sensory system malfunction-hearing and vision disorders, acquired asymmetry postpartum

Torticollis Without Secondary Diagnosis

• Congenital- intrauterine or birth process, birth order, multiple births
  - .3 - 2% as reported in a 2012 article by Tomczak and Rosman Journal of Child Neurology 28(3):365-378

• Acquired- Discuss Back to Sleep and need for prone position and parent education, “container babies”
Two Studies

- Ohman et.al 2009, Sweden
  - Concluded that “Torticollis seems to contribute to the risk of delay especially for infants below age of 10 months. However time spent in prone seems to be of greater significance.”

Schertz et. al 2012, Israel
- Found a correlation with coordination disorders and ADHD in a group of 68 children who were treated for congenital muscular torticollis

Plagiocephaly

- Positioning over time has a significant impact
- Causes asymmetries, impacts vision, feeding
- Helmeting has been thought to be for cosmetic purposes, therapist should provide unbiased information to parent to allow parent to make and educated decision. More studies looking at the effect of head shape on development.
- Is most effective between 4-8 months of age which is the period of peak cranial growth
- Prone supervised awake time throughout the day
Dosing

• Initially follow weekly
• Follow through periods of growth
• Follow through developmental progression
• ROM- neck to toes
• Strength-head righting, UE’s

Developmental Skills Affected by Torticollis

• Why follow babies until walking?
  - Limited either on side of tightness or side of weakness
  - Rolling, reaching, pivoting, sitting, transitions supine to sit, floor to stand, ½ kneel to stand, crawling, creeping all can be affected by neck tightness
The Complicated Baby

Torticollis and The Baby With Other Diagnoses

- Babies who arrive with other diagnoses, including Downs’ syndrome, prematurity, HIE (hypoxic ischemic encephalopathy), reflux, DDH (developmental dysplasia of hips) and BPI (brachial plexus injury).
- Babies who arrive with just a diagnosis of torticollis and who appear either delayed or asymmetric after being seen for therapy.
Babies With Torticollis Plus Prematurity and/or Feeding Issues

- Tummy time is still very important: according to Ohman, Nilsson, Lagerkvist and Beckung (Developmental Medicine and Child Neurology. 2009, 51: 545-550), infants who spent time in prone 3x/day had significantly higher AIMS scores than those who did not
- Encourage parents to provide props or supports for babies in awake and supervised prone
- Encourage parents to gradually increase awake prone time

The Dilemma of Reflux …

- An association between GERD and torticollis has been noted since at least the late 1970s (Journal of Bone and Joint Surgery: vol. 60-A, no. 8; December 1978)
- The perception/”old wives’ tale”: prone positioning exacerbates reflux
- This perception is a fallacy: “positioning in the infant seat is associated with more GERD than prone” was stated in an article by Orenstein, Whittington and Orenstein
Reflux Frequency

- Reflux peaks at 50% at four months of age, and decreases to ~5%-10% at 12 months of age (Pediatrics: Vol. 131, No. 5, May 2013 pp. e1684-1695)
- Emesis will happen, and it shouldn’t dissuade caregivers from prone positioning
- Encourage parents to discuss reflux issues with pediatricians

Relationship Between Torticollis and GERD

- With a retrospective chart review of ~2500 babies seen as outpatients from the years 2010-2015, there appears to be a statistically significant correlation between gastro-esophageal reflux disorder (GERD) and torticollis
- Study to be published in 2016 by Diemer S, Menicos S and Sords D, all PTs at Cleveland Clinic Children’s
Torticollis and HIE (Hypoxic Ischemic Encephalopathy)

- Encourage symmetry in all positions
- Address shortening through the trunk and ribcage
- Encourage screening for visual issues
- Support development

Torticollis and DDH

- Co-morbidity of torticollis and DDH is reported to be 8.5% for babies with hip dysplasia significant enough to require treatment (Tien, Su, Lin and Lin). Encourage prone positioning and demonstrate supports to allow for hip brace
- Facilitate trunk strengthening, especially abdominals
- Demonstrate handling and positioning strategies to parents
Bracing for DDH

Torticollis and Down’s Syndrome
**Torticollis and Down’s Syndrome**

- Be sensitive to potential C1-C2 instability
- No aggressive stretching; no joint mobilizations
- Rely on supported prone positioning
- Facilitate active anti-gravity movement and posture

**Torticollis and Brachial Plexus Palsy**

Hervey-Jumper et al (2011) concluded that although Torticollis occurs with increased frequency in Children with Brachial Plexus palsy, its presence is not related to severity and does not affect the probability of recovery from brachial plexus palsy. Conservative management for Torticollis yields reasonable recovery.
Common Traits of Outliers
(Babies who are not as responsive to PT)

- Babies who had decreased intrauterine movement
- Babies whose position in utero was either breech or transverse
- Babies who are longer than average (20 inches is listed as average)
- Babies who are macrocephalic (>~75%tile)
- Babies with lower muscle tone
- Babies with an extension bias
- Babies with limited floor time
After Identifying “Outliers” …

- Initiate a discussion with the pediatrician
- Review typical development with parents; provide them with developmental handouts
- Support development while addressing torticollis
- Communicate concerns clearly with parents without alarming them
- Consider the effects of lower muscle tone and macrocephaly on “typical” infant disorganization

Evaluation Tools

- Observation
- Arthrodial
- Head Righting Strength Mirror
- Parent report
Parent report

• When first noted
• Parent observations
• Feeding difficulties
• Positioning

Outcomes

Collected values of neck ROM and Head Righting strength (of opposite side)
Used values from documentation to do retroactive studies
APTA Information

- CMT Classification grades and decision tree
Developmental Skills

• Rolling - usually more to one side
• Prone - UE’s assymetrical
• Pivoting - more to one side
• 4 point - influenced by decreased head and neck extension and tilt
• Sitting - unequal weight bearing
• Transitions - difficulty moving to side of tilt due to need for head righting to opposite side
• Pull to stand - favors one side
• Standing - unequal weight bearing
• Walking - symmetrical weight bearing
• Stairs - crawling and walking leading with one side more
Physical Therapy
Torticollis Parent Book

Torticollis Home Exercise Program

Therapist: ____________________
Phone: _______________________
Email: _______________________

Production was completed in conjunction with the CCF Center for Medical Art and Photography

Torticollis Parent Handbook
Home Stretching Exercises and Instruction

Stretching - Rotation
A. Chin to shoulder - back lying
- Position on back
- Place your left hand on baby's shoulder
- Place your right hand on baby's head
- Move your right hand to support and hold your baby's head
- Move your right hand to move your baby's neck towards their left shoulder
- Stretch firmly, gently push per hand for your baby's leaning

Hold for __ seconds Performed __ times Repeat __ times per day

B. Neck rotation - sitting
- Position on side
- Place your baby in sitting or your lap facing away from you
- Place your left hand on baby's right shoulder and your right hand thumb on baby's left shoulder
- Move your left hand towards the baby's left shoulder

Hold for __ seconds Performed __ times Repeat __ times per day

C. Neck rotation - belly lying
- Position on side
- Place your baby in sitting or your lap facing away from you
- Place your right hand on top of baby's head gently to maintain rotation
- Place your left hand around baby's head in mirror position

Hold for __ seconds Performed __ times Repeat __ times per day

Note: rotations off when sick
Torticollis Parent Handbook
Developmental Activities

Exercises for Torticollis

Reaching on belly
Objective:
- To strengthen head neck muscles
- To strengthen shoulder muscles
- To strengthen trunk muscles

White baby is on their belly. Encourage them to reach up toward toy with either hand.

Also included are anatomical drawings of head and neck musculature.

Torticollis Parent Handbook
Primarily Used for Home Program to Parents

Exercises for Torticollis

Rolling on ball
Objective:
- To build neck and upper trunk muscles
- To strengthen head and neck muscles

To Right:
Procedure:
- Start with a ball. Place the baby on their right side
- Encourage them to lift their head and lift the right arm
- Adjust the position as needed

To Left:
Procedure:
- Start with a ball. Place the baby on their left side
- Encourage them to lift their head and lift the left arm
- Adjust the position as needed

Also be used for marketing and potentially be available for sale to other healthcare institutions.
A General Pediatrician’s Take on Congenital Muscular Torticollis (and Positional Plagiocephaly)

Stephen Wexberg, MD

“Heads Up”

- Be proactive
  - Don’t wait for signs or symptoms
  - Instruct parents soon after birth on:
    - “Tummy time”
    - Avoiding restrictive positioning
    - Positioning to encourage variety of movements
“Back to Sleep” in 1992
Changed my experience and my approach

Positional Plagiocephaly

• Incidence
  - Two to five percent in 1990
  - Forty-six percent in 2013*
    • Right occipital flattening 63%
    • Left occipital flattening 33%
    • Symmetric flattening (brachycephaly) 4%
    • 78% were considered mild

• Ninety percent of children with positional plagiocephaly were noted to have preferential head positioning with head rotational asymmetry (i.e. torticollis)*

Is it positional plagiocephaly or lambdoidal craniosynostosis?
Evaluation
“Take it from the top”

- Observe head position seated and supine
- Observe head contour from five perspectives
  - Occipital (a)symmetry
  - Ear positions
  - Facial (a)symmetry
- Assess range of motion of neck
  - Chin to shoulders
  - Ears to shoulders
- Palpate fontanelles and cranial sutures

Physical Examination

- Neurological exam
  - Tone, posture, strength, reflexes, symmetrical movements
- Ocular and extra-ocular movements
- Dysmorphic features
  - Micro/macrocephaly
  - Abnormal facies
  - Short neck, low posterior hairline (Klippel-Feil)
  - Spine, hip or foot deformities
Initial Interventions

- If mild and no concerning history or physical findings
  - Increase “tummy time”
  - Reemphasize positioning
  - Instruct on stretching
  - Reevaluate in 4-8 weeks
- If more than mild, parent hesitant to perform stretches or something not quite right
  - Refer for physical therapy

Red Flags

- Abnormal history or neurological exam
- Atypical physical findings
- Not responding to physical therapy
- Acute onset
- Onset after six months of age
Macrocephaly

- Benign familial
- “External hydrocephalus”
  - Combination of large head (higher center of gravity) and hypotonia may compound torticollis and positional plagiocephaly
- Syndrome associated

Gastro-esophageal Reflux

- “Happy spitters” are extremely common
- Sandifer Syndrome
  - Paroxysmal episodes of stiffening and arching
  - Usually during or soon after a feed
  - May be associated with apnea, staring, slight jerking
  - This position is an attempt to lessen heartburn
    - One more factor which can increase likelihood of torticollis or mimic torticollis
Sandifer Syndrome

Additional Work-up or Referral

- C-spine x-rays?
  - If no atypical findings*
    - Positive predictive value of 40%
    - Negative predictive value of 100%
- Referral to
  - Neurology
  - Ophthalmology
  - Orthopedics
  - Plastics
  - Genetics

Other Causes of Torticollis

- Klippel-Feil Syndrome
- Craniosynostosis
- Chiari malformation
- Sandifer’s Syndrome (GERD)
- Cervical spine abnormalities
- Cortical dysplasia
- Ophthalmologic
- Posterior fossa mass
- Trauma
- Wry neck
- Dystonia
- Arthritis
- Infection
- Paroxysmal torticollis

It Takes a Team

Communication – Communication – Communication

- Alert physical therapist of any concerns
- Notify the PCP if something seems out of the ordinary
Questions???

References

References, p. 2


References, p.3

References, p. 4


Thank You!!!
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