Case Study: 1 Month Old Premature Infant

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The Guide to Physical Therapy Practice

- Examination
  - History
  - Systems Review
  - Tests and Measures
- Evaluation
- Diagnosis
- Prognosis
- Intervention

History

- 24 week preemie, corrected age 1 month
- Vaginal delivery
- Head Ultrasound
  - Grade II, IVH
- Respiratory distress
  - Ventilator X 1 month
  - discharged home nasal O2 and monitor
- GERD
  - Medicated-Zantac(not weight adjusted)
  - Thickened feeds
- Retinopathy of Prematurity
  - Stage 2
- Followed in SICC-first visit
- Parents main concern is feeding
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Systems Review

- Cardiovascular and Respiration
  - Nasal oxygen
  - Apnea monitor - tapes not downloaded
- GI Function
  - GERD
  - Feeding every hour 1 oz
- Neuromuscular
  - Wide, poorly modulated movement in arms, legs in extension
  - Extension > flexion
- Arousal, Attention
  - Challenged to assume alert organized state for social interactions or feeds
  - Crying or sleeping (disorganized sleep for short periods of time)

ICF Framework

Health Condition - Premature Birth-at risk

Body function & structure
- Skeletal alignment
- ROM
- Postural Control
- Muscle Performance
- Ventilation/Respiration
- Sensory Organization

Activities
- Routine Care
- Feeding
- Sleeping
- Mobility
- Play

Participation
- Attention/Interaction with parents, siblings, caregivers

Environmental
- Home, daycare
- Multimodal input

Personal
- ANS, Motor, State and Self Regulation
ICF Framework

- Activities:
  - Routine Care
  - Sleeping
  - Feeding
- Personal
  - ANS, motor, state and self regulation
- Environment:
  - Multimodal input

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Test and Measures

- Systems review guides decision making
- Behavioral language in all systems
  - Competencies and challenges
- Determine the risk/benefit ratio-toleration of infant to developmental assessments and interventions procedures
Behavioral State Regulation-Challenges/Stressors

- ANS
  - Color changes with minimal handling
  - Hiccups
- Motor
  - Extension, arching
  - Salutes, finger splays
- State
  - Hyperalert, crying
  - Sleeping short periods of time-continually moving
  - Maximal facilitation for calming
- Attentional
  - No social interaction, won’t look at toys
  - Falls asleep during feeds

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- Behavioral State Regulation - Unstable
- Synactive Theory
- Infant needs to:
  - ***EAT, SLEEP AND GROW***

Intervention Goals

(developmentally age appropriate and functional)

- Facilitate optimal behavioral state regulation in order to promote:
  - Increased deep sleep
  - Increased volume of feeds
  - Establish good feeding habits
  - Increased self regulation
  - Foundation acquisition of age appropriate gross motor skills

Strategies

- Modify clinic environment
  - Decreased visual and auditory input
- Swaddle infant
  - Provide boundaries to decrease extraneous disorganized movement, energy consumption
- Encourage pacifier use
- Facilitation of palmar grasp
- Use of deep pressure
Caregiver Instruction on Swaddling

Why continue to swaddle?

SWADDLING
Education on Handling during Routine Care

- Salute
- Disorganization

- Hand swaddle
- Deep pressure
- Flexion

Support with Movement

- Sidelying vs. Supine
- Emerging flexion and midline
- Finger grasp
- Hands to mouth
Timing of Routine Care & Interactions
- Conservation of Energy for successful feeds
- Social interaction - at a cost
- Unimodal input
- Appropriate height of visual stimulation

Bathing and Diaper Changing - Unstable Young Infant
- Stop stress with flexion/deep pressure, wait to help baby re-organize
- Use of a wet washcloth over chest or extremities to organize with baths
- Maintain swaddling of upper body with diaper changes/bath for comfort
- Conserves energy allowing greater state regulation/feeding/growth
- Learn everyday care is pleasurable

Additional Recommendations for Caregivers
- Floor Play*
- Incorporate transitional movements and rotational movements into handling
- Don't promote upright unsupported positions too soon
  - Increase support or decrease gravitational impact if upper extremity high guard, arching, extension present
SUPINE

- Hands to feet with pelvic tilt
  - Lengthens extensors
  - Promotes flexor strength, midline control
  - Promotes downward gaze of eyes for eye-hand coordination

SIDELYING

- Challenging for many preemies-requires balanced muscle activity between flexors and extensors
- assist with hand support or rolls
- Promotes arms and legs midline, midline downward gaze, self calming, decreases frogging of the legs, promotes balance between flexion and extension and rolling

PRONE

- Promotes midline skills
- Promotes strengthening of neck, tummy and hip muscles
- Promotes coactivation of flexors and extensors
- Prepares baby for transitions to quadruped
- Encourage prone to sidelying
**Bathing and Diaper Changing—Stable Older Infant**

- Encourage hands to feet
- Encourage rotation and increased abdominal strengthening
  - Supine to sidelying to sit

**Functional Home Programming Suggestions**

- Goals
  - Purposeful, meaningful to/for child/family
- Home programming
  - Simple suggestions that can be incorporated into everyday care/play Diaper changes supine to SL to sit