Approach to a neonate with excessive cry

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Introduction:

- Crying is a *normal physiological response to many stimuli in nonverbal children*. At 6 weeks of age, healthy children cry for approximately 3 hours per day on average, with the peak occurrence occurring between 3 PM and 11 PM. In the literature, there is little agreement on the definition of abnormal cry.
- It is referred to by a variety of terms, including *incessant crying, persistent crying, excessive crying, and problem crying*. The available definitions focus on the duration and inconsolability of the cry.
- The most common definition is "fussing or crying that lasts more than three hours per day and occurs on more than three days in any one week." Depending on the case definitions and age group, the incidence ranges from 1.5 to 11.9 percent. It is highest in infants under 3 months old and significantly lowers after 6 months.
- Incessant crying is one of the common reasons for many emergency visits during infancy which often lead to considerable parental stress and anxiety. Consequences of incessant crying may range from economical burden to long-term disturbances in parent–child relationships and child maltreatment problems like shaken baby syndromes resulting in brain damage.
- A few studies have reported early weaning in these babies because of mothers' perception of incessant crying as hunger cries or due to inadequate milk. Sleep and feeding disturbances are also associated with incessant crying. Reported incidence of serious underlying organic causes is around 5 to 10% in babies with incessant crying.
- An inconsolable cry without any obvious causes such as hunger, thirst, loneliness, wet diaper, loud noise, requires detailed search for a medical cause even if it does not fulfill time criteria. This review article attempts to focus on a convenient approach to incessantly crying infants as this group has diagnostic difficulties and wide differential diagnoses.

Evaluation:

- Most parents consult the paediatrician if they are not able to either identify the cause for crying or if the child is difficult to console.
- Examination and arriving at a diagnosis is always a concern when evaluating a crying infant at the emergency department.
- The element of missing out a small percentage of underlying serious illness adds stress to the health care professionals.
- Gormally and Treem have identified the following ***pointers for underlying organic causes:***
  - High-pitched/abnormal sounding cry.
  - Lack of a diurnal rhythm.
  - Presence of frequent regurgitations, vomiting, diarrhoea, blood in stools, weight loss, failure to thrive.
  - Positive family history of migraine, asthma, atopy, eczema.
  - Maternal drug ingestion.
  - Positive physical examination (including eyes, palpation of large bones, and neurologic, gastrointestinal, and cardiovascular assessment).
  - Persistence of crying past 4 months of age.

Causes:

1. **Infantile colic and behavioral cries** – Infantile colic is defined as paroxysmal crying more than 3 hours/day occurring, more than 3 days/week, lasting more than 3 weeks in an otherwise healthy child who is more than 3 weeks and less than 4 months of age. Diagnosis of exclusion.
2. **Genitourinary system** – UTI, torsion of testis, urinary retention, obstructed inguinal and femoral hernia which warrant thorough clinical examination of genitals and ultrasonogram to confirm the diagnosis.
3. **Other infections** - Acute otitis media (AOM), meningitis, herpes infection, pneumonia, cellulitis and viral illness should be ruled out in febrile neonates with incessant cry.
4. **Gastrointestinal**–Causes under this category are - constipation with or without anal fissure, gastro-oesophageal reflux disease (GORD), intussusceptions (mass in the abdomen, rectal bleeding, vomiting) and intestinal obstructions

5. **Musculoskeletal** - Non accidental trauma with fractures especially to ribs, skull bones and long bones should arouse suspicion of conditions such as shaken baby syndrome and child abuse, septic arthritis, osteomyelitis, tourniquet entrapment of the digits and penis should be considered.
6. **Eyes** - Corneal abrasions, ocular foreign body, retinal haemorrhage, retinal detachment and glaucoma should be ruled out in every crying infants.
7. **Other causes** - Foreign body in airway, supraventricular tachycardia, burns, diaper rash , cow's milk allergy, immunization, insect bites, pseudotumor cerebri, electrolyte and acid base imbalance.

Diagnostic approach:

History:

- ***Comprehensive history taking and physical examination should be the cornerstone*** in approaching a crying infant. Duration, frequency, periodicity and intensity of crying episodes with aggravating and alleviating factors should be recorded.
- History should also focus on comorbid medical conditions, sibling and family history, recent vaccination, photophobia, feeding and sleep behaviour. It is also important to assess the mother – infant relationship, maternal fatigue and stress. Parents are excellent observers and are often able to find subtle signs and symptoms.

Examination:

- Assess whether the baby is ***well or sick***
- Examine vital parameters and assess for ***hemodynamic instability*** if any
- ***Head to toe examination***
- Infants who continue to cry throughout the initial assessment should be observed further and re-examined during normal periods.
- Document the ***infant's crying behaviour*** - time of day, length of episodes, and how often the infant is ill.
- ***Detailed observation of cry*** often gives diagnostic clues. E.g.
    - **High pitched incessant cry**- may indicate central nervous system infection.
    - **A continuous cry associated with grunting**- may indicate respiratory infection / foreign body.
    - **Screaming with pulling at the ears**- may indicate AOM.

- **Intermittent bouts of crying** associated with pallor, with the knees drawn up over the abdomen- may indicate intussusception.
- **Paroxysmal crying episodes** in an otherwise healthy infant less than 4 months of age typically occurring in the late afternoon and evening - suggest infantile colic.

Head to toe examination is must. ***The following are some commonly missed findings during physical examination:***

- Anal fissure
- Corneal abrasion / ocular foreign body
- Retinal haemorrhage / detachment
- Bulging tympanic membrane
- Incarcerated hernia
- Hair tourniquet
- Rib fractures
- Open diaper pin injury
- Megalocornea – glaucoma

With the history and examination findings one should be able to categorize the crying infant into any one group (Fig. 1) and the child investigated further.

The role of investigations in identifying the cause of crying in infants is limited.

Management:

- Supportive care is very essential when no underlying medical cause is found.
- Parents and care givers should be given an explanation about normal crying and sleep patterns, and to recognize needs and discomforts of the baby. Mother's emotional state and the mother–baby relationship should be addressed.
- Ensure that the baby is adequately fed and rested.
- Some general measures such as firmly holding the baby, swaddling, massaging, singing and playing white noise may be tried.
- White noise has a soothing effect on crying and irritable infants. It is a steady stream of subtle monotonous sound such as water fall, rain shower etc.
- REST for infants consists of ***Regulation*** (prevent over stimulation and overtiredness, watch for early warning signs, assist in state transitions and limit crying jags by

catching them early), ***Entrainment*** (e.g. synchronizing infant behavior with environmental stimuli such as light or noise), ***Structure*** (Structured routines include bathing and playtime, as well as consistent sleeping and feeding times), and ***Touch*** (e.g., soothing techniques such as holding or rocking). REST for parents includes Reassurance, Empathy, Support from the health care provider and Time out for the parents (e.g., rest and renewal).

- As all comforting measures will not work for everyone, parents should be guided to identify a unique, comforting technique that is suitable for their infant.
- In extreme cases mild sedation and temporary hospitalization is indicated. Professional support with reassurance and empathy from health care providers is critical in dealing with these infants and parents.

Reference:

Jayavardhana Arumugam, S Sivandam, A M Vijayalakshmi. The evaluation and management of an incessantly crying infant. Sri Lanka Journal of Child Health 2012; 41(4): 192-198