



FOUNDATIONS
of Emergency Medicine

Foundations Frameworks

Approach to the Febrile Neonate (< 90 days)

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*** Fever: temperature > 100.4°F or 38°C. Any measured fever must be assumed to be valid ***

1. Ill Appearing

- a. THE MISFITS mnemonic:
 - i. Trauma: birth trauma, non-accidental
 - ii. Heart: congenital heart disease, hypovolemia, hypothermia
 - iii. Endocrine: congenital adrenal hyperplasia, thyroid, hypoglycemia
 - iv. Metabolic: electrolyte abnormalities
 - v. Inborn errors of metabolism: check glucose, urine, ammonia, lactate
 - vi. Seizure: check glucose, sodium, and iCal in young babies, as hypocalcemia is a common cause of neonatal seizures
 - vii. Formula disasters: hypo/hyponatremia
 - viii. Intestinal catastrophe: NEC, volvulus, intussusception
 - ix. Toxins: take thorough history
 - x. Sepsis
- b. Infection: Full septic workup and treatment
 - i. IV/IO access: 20 mL/kg crystalloid bolus
 - ii. Evaluation: emergent fingerstick glucose, CBC, chem, blood cultures, UA, urine culture, LP studies, CXR, stool studies (if diarrhea), LFTs if concern for HSV (consider PCR testing as well)
- c. Antibiotics:
 - i. ≤ 28 days old
 1. Vancomycin
 2. Ampicillin (needed to cover listeria)
 3. Cefotaxime or Gentamycin
 4. Acyclovir
 - ii. > 28 days old
 1. Vancomycin
 2. Ampicillin (listeria risk highest 29-60 days)
 3. Ceftriaxone
 4. Acyclovir (herpes risk highest 29-60 days)

2. Not Ill Appearing

- a. Less than 28 days, well-appearing
 - i. full septic work-up and antibiotic treatment as noted above
 - ii. most experts still recommend CSF studies in patients with confirmed UTI/suspected URI -> consider consultation with pediatric specialist
- b. Older than 28 days, well appearing
 - i. This is the most difficult decision in the febrile neonate algorithm
 - ii. Use Rochester, Philadelphia, or Boston criteria to determine if child if low risk

- iii. These scores are not perfectly sensitive
- iv. Premature Infants: manage according to their adjusted chronologic age
- v. Search for focal bacterial source with basic evaluation:
 - 1. Abnormal lung sounds -> XR chest to look for PNA
 - 2. Acute Otitis Media (must be VERY clearly defined and not a "hedge")
 - 3. UA and culture for urinary tract infection (up to 5% of infants may have negative UA in setting of true culture positive UTI)
 - 4. Skin exam -> obvious cellulitis
- vi. Consider risk factors: pursue further evaluation if concerned
 - 1. Low risk features:
 - a. Term, healthy, well appearing
 - b. Normal basic w/u (exam, urine, CBC)
 - c. Normal ANC (<10K)/WBC
 - d. Normal procalcitonin (<0.05)
 - e. Normal CRP (<20mg/dL) – *units may vary*
 - 2. Disposition:
 - a. If 'low risk', consider avoiding LP, +/- antibiotics, admission for observation
 - b. If there is a clear source (AOM, PNA, UTI, etc.) you do not necessarily need to do an LP in older infants
 - c. Could also consider strict next day follow-up in consultation with pediatric specialist
- vii. 'High risk' features present: consider full workup with antibiotics and admission

Common Pitfalls:

- Learn your institutions' guidelines/culture and follow them. Each hospital is a little different in practice. Sticking to guidelines will help if there's a "worst case" scenario liability action
- + RSV swabs are nice, but do NOT get you out of a UA/Cx. 5-10% of bronchiolitis patients will have a concomitant UTI

References:

- Smitherman, HF. Macias, CG. Febrile infant (younger than 90 days of age): Management. Jun 21, 2017. Uptodate.com