Fever Without Source in Infants < 28 Days Care Guidelines For Emergency Department Management

CHOC Children's

Inclusion Criteria: Previously healthy children 0-28 days of age who have:
- Fever 38.0 ° C or greater
- No Apparent focus of infection

Exclusion Criteria: PICU status, < 37 weeks gestation

Assessment
- **ESI level 2**
- Vital signs
- Hemodynamic stability
- Signs of sepsis
- Determination of risk for SBI
- Continuous pulse oximetry if respiratory distress, hypoxia present or **pneumonia** is suspected

Interventions
- Blood and urine cultures
- CBC with diff, U/A
- Lumbar puncture/send CSF
- CXR if signs of pneumonia
- Apnea monitor
- Stool culture if diarrhea **plus** blood or mucus

Antibiotics
Ampicillin **AND** Cefotaxime

Antibiotic Dosing Guidance

Ampicillin
- 50 mg/kg IV q 12 hours
- < 7 days, <2000g
- > 7 days, <1200g

OR
- 50 mg/kg IV q 8 hours
- < 7 days, > 2000g
- > 7 days, 1200g-2000g
- > 7 days, > 2000g, non-meningitis

OR
- 100 mg/kg IV q 8 hours
- < 7 days any weight, GBS meningitis

OR
- 100 mg/kg IV q 6 hours
- > 7 days any weight, GBS meningitis

and

Cefotaxime
- 50 mg/kg IV q 12 hours
- < 7 days, < 2000g
- > 7 days, < 1200g

OR
- 50 mg/kg IV q 8 hours
- < 7 days, > 2000g
- > 7 days, 1200-2000g

OR
- 50 mg/kg IV q 6 hours
- > 7 days, > 2000g, non-meningitis

OR
- 75 mg/kg IV q 6 hours

Signs of Pneumonia
- Respiratory signs (i.e. abnormal breath sounds, tachypnea)
- Respiratory symptoms (i.e. cough)
- Respiratory distress
- SA02 < 95%

Recommendations/Considerations
- **Serious bacterial infections** include bacterial sepsis, pneumonia, meningitis, UTI/pyelonephritis, cellulitis, septic arthritis, osteomyelitis, and bacterial enteritis.
- **In general, febrile infants < 28 days should be considered at high risk for SBI** and thus undergo a full septic work-up, hospital admission, and empiric antibiotics.
- **Always consider evaluation and treatment for possible herpes simplex infection (**HSV PCR and intravenous acyclovir) in meningitis or sepsis syndrome especially in infants 0-6 weeks **(See statement on Acyclovir Therapy I Neonates on next page).**
- **Consider viral studies** (VRP, rapid viral screen, CSF/ blood PCR, viral culture) in the febrile infant especially during the enteroviral season and respiratory viral season. **Keep in mind that a positive viral test does not preclude the possibility of SBI.**

Significant Additional Management for Suspected Bacterial Meningitis
- ICU monitoring
- Conservative fluid management
- Electrolyte monitoring
- Frequent neuro checks, serial head circumference

Admission Criteria Medical Surgical Unit
- Hemodynamically stable
- No suspicion for bacterial meningitis

Reassess the appropriateness of Care Guidelines as condition changes and 24 hours after admission. This guideline is a tool to aid clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.

Approved Evidence Based Medicine Committee 5-20-15; Reviewed 5-20-2020

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Care Guideline

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CHOC Children's Evidence Based Medicine Committee

Statement on Acyclovir Therapy in Neonates

Neonates < 4 weeks with fever:

Parenteral acyclovir (20 mg/kg IV q8hours) should be added empirically to antibiotics for neonates admitted with fever in the following situations;

1. Clinical signs of sepsis, toxic (including hypothermia, apneas, hypotension, other signs of shock)
2. Seizure
3. Maternal HSV
4. Physical exam findings consistent with Herpes simplex involvement (skin, eye, mucous membrane)
5. CSF pleocytosis with negative gram stain and consistent with aseptic meningitis.

Anytime acyclovir therapy is started on neonates one should perform a lumbar puncture and send the cerebrospinal fluid for HSV PCR.

In high risk situations where there is concern for disseminated HSV or SEM disease please send whole blood for HSV PCR, obtain swabs for HSV viral culture of at least 3 different mucous membrane (i.e. mouth, conjunctiva, nasopharynx, rectum), and any skin lesions and a panel 18. Obtain an Infectious Disease Consult.

Because of the risk of renal toxicity, patients on intravenous acyclovir should receive maintenance IV fluids and have urine dipped for heme q shift to evaluate for early evidence of nephrotoxicity.

In the absence of the above findings, in the neonates admitted with fever, the following scenarios demand specific attention.

1. Traumatic lumbar puncture: attempts to interpret traumatic CSF may lead to serious misdiagnoses. CSF with RBC > 2000 should be interpreted with caution and should be dealt with on an individual basis.
2. Unsuccessful lumbar puncture: same as above; increased LFTs and low platelets would be suggestive of disseminated HSV. These neonates are addressed above.
3. Strongly consider adding acyclovir in the presence of:
    a. Decreased platelets
    b. Increased liver function tests (LFTs), if done
    c. Pneumonia

In these scenarios when the infant appears more ill than would be expected, the physician's judgment should be used to determine acyclovir use on a case by case basis.

Obtain an Infectious Disease consult if Acyclovir is to be continued more than 48 hours or if index of suspicion for HSV is high.

Afebrile Neonates

Acyclovir should empirically be given to patients admitted with seizure and or physical exam findings consistent with Herpes simplex involvement (skin, eye, mucous membrane) and/or altered mental status.

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