Obtain history and assess for HSV risk using .febrileinfanthistory

Obtain
• UA, urine culture via catheter
• CBC with differential, blood culture
• Procalcitonin (PCT); or CRP if PCT not available*
• SARS-COV-2 PCR (as pandemic is ongoing)

Herpes Simplex Virus (HSV)
Risk Factors
Physical:
• Severe illness
• Hypothermia
• Seizures
• Depressed neuro status (not arousable)
• Vesicular rash
• Exposure or history of HSV lesions (genital or skin/oral prior to or after delivery)

Diagnostic:
• CSF with pleocytosis > 20, without clear bacterial infection (e.g. positive gram stain or positive MEP)
• Thrombocytopenia
• ALT >50

Exclusion
• Gestational age ≤ 37 weeks
• Weight ≤ 2,000 grams
• Need for immediate critical care
• Chronic underlining illness or immunocompromised
• CVL catheter or VP shunt in place
• Post operative patient or hospitalized for 3 days or more

Respiratory pathogen panel not routinely recommended, unless clinically indicated

Obtain HSV workup:
• HSV PCR from conjunctiva, buccal mucosa, rectum, and any vesicular lesions
• HSV blood PCR (can add to existing CBC specimen)
• CMP

Start antimicrobials:
• 8-21 days: Ampicillin + Ceftazidime
• 21 + days: Ceftriaxone
• Acyclovir (if HSV workup performed)*

Indications to expand antibiotic coverage:
• Recent maternal infection (e.g. UTI)
• Bulging fontanel

*Requires renal dosing

Disclaimer: If available, PCT should be obtained. If PCT unavailable, both ANC and CRP should be obtained; CRP >2mg/dL, and ANC >4000 are considered abnormal

Assess risk of invasive bacteria infection (IBI) (see second page for risk factors)

Review inflammatory markers*

High PCT ≥0.5ng/mL
Perform LP

Normal PCT < 0.5ng/mL
Consider No LP; Hold Abx

Discontinue antimicrobial(s) and may discharge hospitalized infant if all cultures are negative at 24-36 hours and HSV PCR (if sent) is negative

Admit to Hospitalist

Risk for any HSV infection?
SEM, CNS disease or disseminated

NO

Focal infection or shock?

YES

Sign of focal infection or shock?

Febrile infant Rectal temp ≥ 38°C (or reliable fever at home) OR Hypothermia with temp < 36°C

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Respiratory pathogen panel not routinely recommended, unless clinically indicated

Review risk criteria and UA

Low Risk; No indication for admission
- No antimicrobials and assure close PCP follow-up within 24 hours

Low risk with normal UA; Need admission for bronchiolitis
- No antimicrobials if meets low risk criteria

Low risk with abnormal UA
- No LP; Start Ceftriaxone; Non-meningitic dosing

No antimicrobials if meets low risk criteria
- No LP; Start Ceftriaxone; Non-meningitic dosing

No LP
- Start Ceftriaxone; Non-meningitic dosing

Sign of focal infection or shock?
- If high suspicion of bronchiolitis continue pathway

Manage off pathway

Herpes Simplex Virus (HSV) Risk Factors
Physical:
- Severe illness
- Hypothermia
- Seizures
- Depressed neuro status (not arousable)
- Vesicular rash
- Exposure or history of HSV lesions (genital or skin/oral prior to or after delivery)

Diagnostic:
- CSF with pleocytosis > 20, without clear bacterial infection (e.g. positive gram stain or positive MEP)
- Thrombocytopenia
- ALT >50

Risk Factors for Invasive Bacterial Infection (IBI)
- Ill-appearing
- Previously hospitalization or prolonged nursery course
- Procalcitonin ≥ 0.5ng/mL OR ANC > 4,000 and CRP ≥ 2mg/dL
- Fever ≥ 38.5
- If CXR performed, discrete infiltrates present
- Prior antibiotic use

ANY positive criteria equals High Risk

High Risk for IBI
- Perform LP: CSF studies (cell count, glucose, protein, meningitis/encephalitis panel (MEP), gram stain and culture)
- Start ceftriaxone (meningitic dosing)

If Risk for HSV or CSF with pleocytosis > 20 without clear bacterial infection add:
- HSV PCR from conjunctiva, buccal mucosa, rectum, and any vesiculr lesions
- HSV blood PCR (can add to existing CBC specimen)
- CMP
- Start Acyclovir

Discontinue antimicrobial(s) and may discharge hospitalized infant if all cultures are negative at 24-36 hours and HSV PCR (if sent) is negative

Disclaimer: Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.
Febrile Infant: Antibiotic Dosing 8-21 days

- **Acyclovir**: 20mg/kg IV every 8hr\(^{1,2}\)
- **Ampicillin**: 75mg/kg IV every 6hr\(^{1,2}\)
- **CefTAZidime**: 50mg/kg q8hr\(^{1,2}\)

These antibiotics require renal dosing

References:
1. Lexicomp Online, Pediatric and Neonatal Lexi-Drugs Online, Hudson, Ohio: UpToDate, Inc.; 2020; accessed: 8/26/2020

Febrile Infant: Antibiotic Dosing 22-60 days

- **Acyclovir**: 20mg/kg IV every 8hr\(^{1,2}\)
- **CefTRIAXone**: 50mg/kg IV every 12hr (CNS infection)\(^1\)
  50-75mg/kg IV every 24hr (non-CNS infection)\(^1\)

References:
1. Lexicomp Online, Pediatric and Neonatal Lexi-Drugs Online, Hudson, Ohio: UpToDate, Inc.; 2020; accessed: 8/26/2020
FEBRILE INFANT PATHWAY:

Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABX</td>
<td>Antibiotics</td>
</tr>
<tr>
<td>ALT</td>
<td>Alanine transaminase</td>
</tr>
<tr>
<td>ANC</td>
<td>Absolute neutrophil count</td>
</tr>
<tr>
<td>CBC</td>
<td>Complete blood count</td>
</tr>
<tr>
<td>CMP</td>
<td>Comprehensive metabolic panel</td>
</tr>
<tr>
<td>CNS</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>CRP</td>
<td>C-reactive protein test</td>
</tr>
<tr>
<td>CSF</td>
<td>Cerebrospinal fluid</td>
</tr>
<tr>
<td>CVL</td>
<td>Central venous line</td>
</tr>
<tr>
<td>CXR</td>
<td>Chest X-ray</td>
</tr>
<tr>
<td>HSV</td>
<td>Herpes simplex virus</td>
</tr>
<tr>
<td>IBI</td>
<td>Invasive bacterial infection</td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>LP</td>
<td>Lumbar puncture</td>
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<tr>
<td>MEP</td>
<td>Meningitis/encephalitis panel</td>
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<tr>
<td>PCR</td>
<td>Polymerase chain reaction</td>
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<tr>
<td>SEM</td>
<td>Skin, eye, and mouth</td>
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<tr>
<td>PCT</td>
<td>Procalcitonin</td>
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<td>UA</td>
<td>Urinalysis</td>
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<tr>
<td>VPS</td>
<td>Ventriculoperitoneal shunt</td>
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</tbody>
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ChildrensOmaha.org/Pathways

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