Haemophilus parainfluenzae as an Unusual Cause Of Early Onset Neonatal Sepsis

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ABSTRACT

Neonatal early onset sepsis (EOS) occurs in 0.5/1000 live births. Haemophilus parainfluenzae (HP), a gram negative coccobacilli, is known primarily as a commensal organism in adult genital and respiratory tracts. HP associated EOS is found in only 10 known previously reported cases with an associated mortality rate. This case provides a unique presentation of HP in a term neonate without significant known risk factors.

BACKGROUND

Haemophilus parainfluenzae is known primarily as a commensal organism in adult genital and respiratory tracts. HP is a gram-negative, facultative anaerobic, catalase-negative, non-spore forming bacillus. It belongs to the family Enterobacteriaceae and the genus Haemophilus. It is divided into two species: Haemophilus influenzae and Haemophilus parainfluenzae. H. influenzae is a well-known pathogen, especially in children and adults, while H. parainfluenzae is less commonly associated with human disease.

CASE SUMMARY

A 37 week, 3.52 kg term gestation male was born to a 28-year-old, afebrile, pre-eclamptic, primigravida mother via Caesarean Section for fetal decelerations and distress following rupture of membranes and labor for 15 hours in a small community hospital.

- Maternal prenatal labs unremarkable
- APGARs (range 0-10) were 0 at 1 minute, 2 at 5 minutes, and 4 at 10 minutes with immediate resuscitation after birth with positive pressure ventilation, compressions, intubation, and epinephrine
- Labs were consistent with a code event, including blood gas pH of 6.77 (normal range: 7.32 ± 0.05)
- Blood culture (BC) was followed by ampicillin and gentamicin
- Following resuscitation, posturing with arm extension concerning for hypoxic ischemic encephalopathy (HIE) was noted
- Transfer was initiated to a Level IV Neonatal Intensive Care Unit per HIE Cooling Protocol
- After arrival, HIE cooling protocol continued, including phenobarbital loading
- Patient’s apnea, bradycardia, and desaturation events resolved by 48 hours of age
- Followed by extubation
- Lumbar puncture (LP) was unsuccessful
- BC resulted as positive and identified as Haemophilus parainfluenzae, β-lactamase negative
- Antimicrobials were changed to cefepime and gentamicin, pending results of echocardiogram
- Patient had normal echocardiogram and gentamicin was discontinued
- A 21-day course of cefepime monotherapy was given via peripherally inserted central catheter
- Brain MRI normal
- Surgical pathology of placenta resulted with mild acute chorioamnionitis, not suspected at time of delivery
- No appreciable developmental delays noted and patient with appropriate exam for age at discharge and at 2 months of age.

CONCLUSIONS

Despite being rare, Haemophilus parainfluenzae should remain within the early onset sepsis differential as it can have devastating effects. Major risk factors include prematurity and chorioamnionitis. However, as in this case, it may not be clinically expected. Ampicillin and gentamicin are appropriate as first line empiric coverage for HP, regardless of β-lactamase status. Mortality and morbidity are high for neonatal HP and potential complications include meningitis, brain abscess, endocarditis, pneumonia, and developmental delays.

REFERENCES


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