Outbreak of a Late-Onset Group B Streptococcus Cluster due to Probable Horizontal Transmission in a Level 3 Neonatal Intensive Care Unit

Katerina G. Oikonomou, MD, PhD, Angela Gabasan MSN, RN, CIC, Krystyna L. Woods, MD, Emilia M. Sordillo, MD, PhD
Icahn School of Medicine at Mount Sinai, Mount Sinai St Luke’s-West, New York, NY, USA

Introduction

Group B Streptococcus (GBS) is a major pathogen among neonates and young infants.

- Early onset – occurs within the first week of life, associated with pregnancy-related risk factors.
- Late-onset – occurs after the first week of life through 3 months, sporadic.
- Outbreaks of late-onset (GBS) are rare.

In February 2017, our 20 bed Neonatal Intensive Care Unit (NICU) identified 2 preterm infants with late-onset GBS infections occurring within a 5 day period, prompting an outbreak investigation and report of a probable link.

Methods

Case Identification

A case was defined as culture-confirmed invasive GBS infection in a preterm infant <37 weeks gestational age (GA).

Laboratory records for the 4 weeks prior to and 12 weeks following the index case were reviewed to identify additional cases.

Analysis of GBS Isolates

- Antibiograms compared
- All 3 isolates referred to NYS DOH Wadsworth Lab for pulse field gel electrophoresis (PFGE).

Other Investigation

- Hand hygiene compliance
- Nursery conditions – census, floor plan, incubator proximity
- Breast milk handling & storage
- Disinfection of reusable equipment
- Environmental Services (EVS) procedures

Analysis of GBS Isolates

Antibiograms

- Isolates from the 2 infants had the same susceptibility patterns.
- All were penicillin susceptible, erythromycin resistant and clindamycin susceptible without inducible resistance. PFGE

Lab Record Review

- No additional GBS cases

Conclusions

- No environmental factor or clear mode of transmission were identified; however, horizontal transmission was highly suspected.
- The average NICU census during this time was 27, exceeding the maximum of 20 patients.
- High census and possible transient hand carriage of GBS by the staff may have played a role in the transmission of GBS.
- Adherence to hand hygiene and isolation practices were essential in containing the outbreak and preventing further transmissions.

References