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Serious bacterial infections in infants in the first 90-days of life: A revisit in the era of multi-drug resistant organisms

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Statement of the problem: Infants in the first ninety days of life are more prone to develop serious bacterial infections (SBIs). Multi-drug resistant organisms (MDROs) are emerging as important pathogens causing SBIs. We reviewed the epidemiology of SBIs in infants 0-90 days old and compared clinical features, laboratory values and final outcome for SBIs due to MDROs vs. non-MDROs.

Methodology: Episodes of culture-proven SBIs (bacteremia, UTI, or meningitis) with age at onset of 0-90 days during a 5-year period were retrospectively reviewed. Healthcare-associated infections were excluded. We collected demographics, clinical features, and laboratory and microbiology data. We compared clinical characteristics, laboratory data, microbiologic results and final outcome for SBIs due to MDROs vs. non-MDROs.

Findings: 72 episodes (68 patients) including bacteremia (50%), UTI (46%) and meningitis (4%) were caused by Gram-negative bacteria (60%), and Gram-positive bacteria (40%). E. coli and GBS were the most common causes. MDROs caused SBIs in 27 patients (40%). SBIs due to MDROs were associated with more delay in providing targeted antimicrobial therapy compared to non-MDROs (75% vs. 0%, P = <0.001), but no difference in case-fatality rate (15% for each, P = 1.0). Clinical features or basic laboratory values were not statistically different between the two groups.

Conclusion: The bacteriology of SBIs in the first ninety days of life is changing to include more MDROs, which causes more delay in providing targeted antimicrobial therapy. Neither clinical features nor laboratory values differentiate SBIs due to MDROs from non-MDROs. Awareness of the local epidemiology is crucial to ensure appropriate antibiotics are provided in a timely manner.

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