Nationwide epidemiology of early-onset sepsis in Israel 2010-2015, time to re-evaluate empiric treatment.

Abstract

AIM：

Early-onset neonatal sepsis (EOS) may lead to significant morbidity and mortality yet the recommended antimicrobials have not changed for many years. We aimed to optimise EOS treatment by examining EOS pathogens, resistance rates and resistance risk factors.

METHODS：

A retrospective, nationwide cohort study analysing 2010-2015 EOS data in Israel.

RESULTS：

The 21 participating centres constitute 92% of the total birth cohort (around 180,000 live births/year). Of 549 EOS neonates (0.57/1,000 live births), 306 (56%) and 243 (44%) were full-term and preterm, respectively (0.35vs.2.94 per/1,000 live births). Gram-negative pathogens predominated, especially in preterms. Escherichia coli and Streptococcus agalactiae were most common pathogens (0.2 and 0.19 per 1,000 live births, respectively). In 277 Gram-negatives, 16%, 14%, 8%, and 3% were gentamicin-resistant, extended-spectrum beta-lactamase (ESBL)-positive, gentamicin-resistant and ESBL-positive, and amikacin-resistant, respectively; Preterms had higher resistance rates. No risk factors for antimicrobial resistance were identified. Mortality was reported in 21% of Gram-negative EOS versus 7% in Gram-positive [OR 3.4 (95%CI 1.8-6.2), p<0.01.[

CONCLUSION：

In this nationwide study, EOS was caused predominantly by Gram-negatives, with high gentamicin resistance and ESBL phenotype rates, without identifiable resistance risk factors. As EOS is life-threatening, modification of empiric therapy for amikacin-based regimens should be considered, mainly in preterms.