Correction of relative risk in neonatal sepsis

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Respectable editor.

I read with interest the article “Prolonged exposure to antibiotics and the risk of late-onset sepsis (LOS) in neonates of 1000-1500 g: a cohort study”, by doctor Briones Lara,1 published at Gaceta Médica de México.

The authors calculated the relative risk (RR) in two groups of neonates: exposed (receiving antibiotics for > 5 days) and non-exposed (< 5 days), with the probability for developing late-onset sepsis and necrotizing enterocolitis in premature neonates with 1000 to < 1500 g body weight. They reported an incidence of late-onset sepsis of 65.3 % (32/49) in exposed and 8.1 % (4/49) in non-exposed neonates, and 24.5 % (12/49) and 4.0 % (2/49), respectively, for necrotizing enterocolitis.

The reported RR calculated for developing late-onset sepsis was 21.1 (95 % CI = 6.5-68.9), a figure that actually corresponds to the odds ratio (OR); the corrected RR for late-onset sepsis must be 8.6 (95 % CI = 3.05-20.9). Similarly, the RR for developing necrotizing enterocolitis that was indicated was 7.6 (95 % CI = 1.6-36.1), which should be 6.0 (95 % CI = 1.4-25.4). The RR correction was performed using Epi-info version 7.2 for Windows.2

In cohort studies, RR and OR can be estimated to measure the strength of association, but there are conditions for both these measurements to be considered as being equivalent; the most important is that the disease of interest must have a low prevalence in the exposed group.3 When this condition is met, RR and OR are a good approach and can be indistinctively used. In the commented report, incidence of the outcomes was very high: 65.3 % (32/49) developed late-onset sepsis and 24.5 % (12/49), necrotizing enterocolitis. Due to the elevated frequency in exposed children, RR and OR shouldn’t have been used indistinctively.

Corrected RR for late-onset sepsis and necrotizing enterocolitis shows a strong correlation between antibiotic-exposure time and the development of unfavorable outcomes (late-onset sepsis and necrotizing enterocolitis).

The above observations are by no means intended to invalidate the results reported in the study.

References


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