

Is Trimethoprim-Sulfamethoxazole (TMP-SMX) An Alternative in the Management of Infections by Community-Acquired Methicillin Resistant *Staphylococcus aureus* in Children?

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In recent years, there has been a marked increase in the incidence of invasive Community-Acquired Methicillin-Resistant *S. aureus* (CA-MRSA) among children worldwide. Trimethoprim Sulphamethoxazole (TMP-SMX) was proposed for the treatment of suspected or documented CA-MRSA infection with the additional benefit of being an easy to use and inexpensive antibiotic agent.

TMP-SMX has *in vitro* bactericidal activity against CA-MRSA and has excellent oral bioavailability and tolerance, good taste, and low cost. TMP-SMX also achieves good concentrations in bones, lungs, and central nervous system.

These conditions make TMP-SMX a potentially useful alternative to treat CA-MRSA Based on evidence: Is useful this drug in the daily practice?

Following a detailed search strategy we performed a comprehensive systematic review of the medical literature with the aim to identify Randomized Controlled Trials (RCT) comparing TMP-SMX vs. any other antibiotic as the first-line treatment in CA-MRSA infections in children.

Although we did not exclude studies according to the location and severity of infections, no studies on invasive infections treated with TMP-SMX that met high grade of evidence was found. All the studies included were focused on skin and soft-tissue infections, which are the most common CA-MRSA-related infections. In other infections the role of TMP-SMX is not clearly defined. Its use in the treatment of invasive infections has been discouraged because of a concern for therapeutic failures.

Are there limitations in our systematic review?

The first limitation is the low number of studies found that

complied with the selection criteria, the lack of quality studies beyond those on skin and soft-tissue infections, and the lack of evidence on the role of TMP-SMX as the first-choice treatment in systemic CA-MRSA infection in children [1].

Based on the limited availability of literature on the issue and the heterogeneity of the included studies it was not possible to perform a Meta-analysis. Currently, studies showing TMP-SMX as the treatment of choice in the era of CA-SAMR are not sufficient to make strong recommendations on its use. Our study confirms the paucity of evidence to support the prescription of TMP-SMX.

How to interpret these findings?

We cannot conclude that SMX-TMP should be avoided in infections by CA-MRSA. It is important to point out that the available studies failed to show either superiority or inferiority of TMP-SMX against the tested alternatives.

What can we do?

Additional well-designed studies are required to further elucidate this issue is necessary to begin to work to drawn definitive recommendations about the use of this drug in children with infections by CA-SAMR.

Reference

1. Rosanova MT, Pompa LC, Perez G, Sberna N, Serrano-Aguilar P, et al. (2016) Is Trimethoprim-Sulfamethoxazole a Valid Alternative in the Management of Infections in Children in the Era of Community-Acquired Methicillin-Resistant *Staphylococcus aureus*? A Comprehensive Systematic Review. J Pharm Tech 32: 81-87.

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