A new language to combat multidrug-resistant pseudomonas infection: what´s the true?

Ana Belen Fernández
Hospital Universitario Nuestra Señora de Candelaria, Spain

Bacterial infections, especially drug-resistant infections are a major global health issue. The emergence of multidrug- resistant (MDR) strains of bacteria and the lack of new antibiotics is a worrying prospect for all of humanity. A recent report suggests failing to control drug-resistant infections may cause more than 10 million deaths per year and cost up to 100 trillion by 2050. MDR Gram-negative bacteria are particularly difficult to treat due the nature of their robust outer membrane. In the last years, the resurrection of old antibiotics that still maintains sensitivity to these microorganisms, such as colistin, with important adverse effects, and high morbi-mortality, such as nephro-neurotoxicity and even affection of respiratory muscles, especially in the critical patient. However, there is a dearth of information on the pharmacokinetics (PK), pharmacodynamics (PD) and toxicodynamics (TD) of colistin and its non-active prodrug colistimethate sodium (CMS). Optimized dose regimenens have not been established for different types of patients. Ceftolozane/tazobactam is a novel antimicrobial agent with activity against *Pseudomona Aeruginosa*, including drug-resistant strains, and other Gram-negative pathogens, including most extended-spectrum B-lactamase (ESBL)-producing *Enterobacteriaceae*. It has been authorized for the treatment of complicated intra-abdominal infections (c-IAIs), complicated urinary tract infections and for the treatment of acute pyelonephritis. The choice of treatment in these situations will be individualized according to antibiogram, efficacy data and risk of toxicity. *In vitro* studies have shown that Ceftolozane/tazobactam is the most potent antipseudomonal agent, maintaining activity against many multidrug-resistant strains (the activity of Ceftolozane is not affected by some of the main resistant mechanisms for *P. aeruginosa*: AmpC B-lactamase overproduction, efflux pumps and loss of OprD. In our hospital, it has been available since February 2016, so we have a limited experience. Six patients with complicated intra-abdominal infection (c-IAI) and MDR *P. aeruginosa* were treated, always with a previous sensitivity study, and in some cases, in an empirical way with high suspicion and selected patient (high risk of death with severe/moderated renal impairment), four of these had a successful clinical evolution, the rest died due to multiorgan failure. In conclusion, it is crucial now to optimize antibiotics and their rational use. With the birth of the new beta-lactam/B-lactamase inhibitors, Ceftalozane-tazobactam and Ceftazidime-avibactam, we can talk about a new horizon to combat multi-resistance in our time.

Biography

Ana Belen Fernández is working as surgeon in the Hospital Universitario Nuestra Señora de Candelaria, Spain.

anabfp@gmail.com

Notes: