Facing a new generation of hospital pathogens in Pediatrics

Enfrentando una nueva generación de patógenos nosocomiales en pediatría

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Health-care related infections have a direct impact on the course and prognosis of every patient since they translate into prolonged lengths of stay and clinical worsening.

Prolonged lengths of stay increase expenses in every medical unit because human and material resources are used every day. According to the World Health Organization, every nosocomial infection is preventable and treatable.

Attention is focused on the processes that affect the clinical course of any patient, especially those in a vulnerable age group: the pediatric age. Current advances in medicine have stood out for dealing with highly lethal invasive bacteria with an increasingly peculiar resistance profile. To face this generation of pathogens, the pediatrician is obliged to be aware of the epidemiology of every hospital unit, which should be updated at least every six months by the Infectology services of every unit (committees for the prevention and control of nosocomial infections) or by the hospital epidemiology service. Results should be displayed in clinical areas, given the variability in sensitivity patterns and constant resistance because of the indiscriminate use of antibiotics. Therefore, management rules for healthcare related infections should be developed in every unit, along with management guidelines that should be respected.

Even though microbial versatility related to resistance is currently being faced, every disease should be managed according to existing sensitivities to predict the

next step in bacterial mutation. Punctual knowledge of the phenotype (which, at least, helps to understand the diverse intrinsic mechanisms that bacteria possess) allows being one step ahead of these increasingly complicated-to-treat pathogens. It is the obligation and responsibility of the committees to offer updated guidelines every six months and start a program for rational use of antibiotics with a blockade of antibiotics that induce cross-resistance. However, what about those who defend normativity or those who rise in defense of clinical practice guidelines? While these tools help to make decisions, they can be useful as long as knowledge of the predominant microbiota and resistance is considered. All these guidelines include a legend that states “as long as your hospital unit is not overwhelmed by resistance”. Therefore, guidelines can provide guidance but not always point to the right path, especially with the certainty that their proposal is not useful due to resistance.

Occasionally, the fear of using “forbidden” antibiotics in pediatrics (quinolones, tetracycline before eight years of age) prevails. We have been taught “first, do no harm”. Nevertheless, microorganisms have surpassed us. They have become more difficult to treat: *E. coli* ESBL, *Klebsiella* KPC, MDR/XDR *Pseudomonas*, MDR *Acinetobacter baumannii*, fluconazole-resistant *Candida albicans*, the same microorganisms, with nosocomial outbreaks. If in other countries their use has not been approved due to lack of supporting studies, why should we not use

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them? We should face it: we have been surpassed by bacterial resistance. The dictum states "first, do no harm". However, if the survival of a small human being is in our hands, and without any other alternative, we must use them, as long as the benefits exceed the risks. For many, the development of a program such as the one proposed can seem ambitious and complicated. Nevertheless, it only takes the first step: knowing what we are facing in every hospital unit. These are the same

pathogens, with different sensitivities and frequencies and diverse resistance mechanisms. Although it becomes a hard endeavor, the most benefited will be the patients by having a direct impact on the reduction of hospital admissions, in expenses not initially contemplated and, most importantly, in survival and quality of life. It is true, we are dealing with a new generation of pathogens, but these did not count on facing a new generation of health professionals.