Response to Chan

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Dear Editors,

We thank Dr. Chan for the valuable comments in response to our recent article in *Pediatric Nephrology* regarding risk factors for a urinary tract infection (UTI) by extended-spectrum beta-lactamase (ESBL)-positive bacteria [1]. As a response to the letter to the editor from Dr. Chan, we want to make some comments.

Although its prevalence varies from country to country, from 10 to 40%, the proportion of ESBL-positive UTIs is increasing worldwide in general over time. This could be related to an increase in the use of broad-spectrum antibiotics. Park et al. showed a linear increase in the prevalence of UTIs by ESBL-positive organisms in regions where third-generation cephalosporins were highly prescribed [2]. Continuous exposure to antibiotics places selective pressure on individual pathogens, resulting in an increase in the durability and reproduction of multidrug-resistant bacteria, which either directly or indirectly increase the risk of infection by resistant strains. These bacteria may be transmitted to previously unexposed children through the environment or via contact with individuals who have already been colonized. Therefore, if the prescription rate of broad-spectrum antibiotics is higher in mainland China than in Hong Kong, this could account for a higher prevalence of infections by resistant bacteria in China than in Hong Kong.

To some extent, we agree with Dr. Chan's perspective on continuing the use of empirical antibiotics for

treating children with ESBL-positive UTIs based on clinical response rather than in vitro susceptibility. Hyun et al. reported that among ESBL-positive UTI cases treated with non-susceptible empirical antibiotics, 89% of the cases demonstrated a good clinical response and 55% maintained the non-susceptible antibiotics at the end of treatment [3]. In this study, the relapse and scarring rates were not significantly different between children with ESBL-positive UTIs who were treated with susceptible antibiotics vs. those treated with non-susceptible but clinically effective antibiotics. However, evidence based solely on clinical response is insufficient for forming a consensus on the adequacy of antibiotic use, regardless of in vitro susceptibility. Further studies are needed to determine the appropriate use of antibiotics in children with ESBL-positive UTIs.

Declarations

Conflict of interest The authors declare no competing interests.

References

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