

Intravenous Colistin Use in Children: Single-Center Experience

Dear Editor,

Nosocomial infections formed by multiple drug resistant (MDR) gram negative bacteria are widespread problem with an ever-increasing frequency all over the world (1, 2). Colistin, a bactericidal agent antibiotic for gram negative microorganisms have come into use in 1950s, but the abundance of the side effects and the existence of safer alternatives have limited its use. The unavailability of new drugs today and the problem of resistance against the existing drugs have brought up the use of colistin treatment against the life-threatening infections (3).

I read the article titled "Use of Intravenous Colistin in Children: Single Center Experience" by Çağan et al. (4) with great interest. In their article, the authors present an original study in which efficiency and reliability of colistin was in question and the data of a single center were revealed. The authors retrospectively investigated 23 children who were given intravenous colistin treatment, but did not find any traces nephrotoxicity, the well-known side effect of colistin in any of their patients in their study.

We also carried out a retrospective study in which 41 nosocomial infection attacks of 35 children given colistin treatment in the intensive care unit at our hospital were investigated between March 2008 and March 2013 (5). Five patients (14.2%) were preciously healthy, the other patients (85.7%) had an underlying chronic disease. The most frequently isolated microorganism, site or isolation and infection type were *Acinetobacter baumannii*, tracheal aspirate and ventilator-related pneumonia respectively. Three patients were observed to have renal failure during the colistin treatment (7.3%). Due to the renal failure that developed on the 13th day of treatment, one patient was given peritoneal dialysis therapy for 14 days. Colistin treatment of this patient was extended to 22 days and the renal functions went back to normal 18 days after the completion of treatment. Colistin treatment was discontinued due to renal failure in the second patient on the eight day of colistin treatment. Following the discontinuation of treatment, renal functions went back to normal in this patient as well. The ataxia telangiectasia-diagnosed third patient, on the other hand, was observed to have serious sepsis and septic shock due to renal failure on the fourth day of colistin treatment. Colistin treatment continued because the patient had a serious sepsis condition and immune deficiency. The patient died on the eight day of treatment. It was thought that the possible cause of renal failure in this patient was shock and multiorgan deficiency. The patients in our study were given many other drugs

before the colistin treatment and together with colistin. Therefore, the emerging side effects have not been associated with colistin alone. Besides, on the onset of colistin treatment, doze adjustment was done for the three patients with renal failure and renal replacement treatment was implemented (hemodialysis and peritoneal dialysis). One of these patients was chronic renal failure patient requiring hemodialysis; the other two patients had renal failure as a component of multiple organ deficiency. One of these patients was given hemodialysis and the other peritoneal dialysis therapy. In our study, twenty eight infection attacks (68.3%) resulted in success, treatment was discontinued in one patient due to side effects and 12 patients died during the treatment (6 infection-related, 6 not infection related). It was thought that since all our patients were composed of cases followed up in the tertiary intensive care unit and most of the patients developed multiple organ deficiency on the onset of colistin treatment, these negatively affected nephrotoxicity and prognosis.

In conclusion, nosocomial infections are serious problems in our country as well as all over the world. Mortality is very high in these infections because the antibiotics to be used are very limited. Increase in morbidity and mortality, extended hospital stays, increased treatment costs and appropriate and efficient use of antibiotics have all made it inevitable to apply the infection control measures. For the treatment of serious nosocomial infections formed by MDR gram negative bacteria, colistin is an efficient and reliable antimicrobial. However, nephrotoxicity is a significant side effect limiting the use of colistin. Therefore, in order minimize the colistin-driven nephrotoxicity, the joint use of other nephrotoxicity drugs should be avoided and renal function tests should regularly be done and monitored.

Best regards,

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References

1. Boucher HW, Talbot GH, Bradley JS, et al. Bad bugs, no drugs: no ESCAPE! An update from the Infectious Diseases Society of America. *Clin Infect Dis* 2009; 48: 1-12. [\[CrossRef\]](#)
2. Logan LK. Carbapenem-resistant enterobacteriaceae: an emerging problem in children. *Clin Infect Dis* 2012; 55: 852-9. [\[CrossRef\]](#)
3. Iosifidis E, Antachopoulos C, Ioannidou M, et al. Colistin administration to pediatric and neonatal patients. *Eur J Pediatr* 2010; 169: 867-74. [\[CrossRef\]](#)

4. Çağan E, Soysal A, Bakır M. Çocuklarda intravenöz kolistin kullanımı: tek merkez deneyimi. *J Pediatr Inf* 2014; 8: 153-8.
5. Karlı A, Paksu MS, Karadağ A, et al. Colistin use in pediatric intensive care unit for severe nosocomial infections: experience of an university hospital. *Ann Clin Microbiol Antimicrob* 2013; 7: 12: 32.

Refusal Rates of the Birth Dose of Hepatitis B Vaccine

To the Editor,

We read the article by Vasireddy et al. (1) regarding the factors that affect the refusal rates of the birth dose of hepatitis B vaccine with great interest. In their article, the authors stated that although the hepatitis B birth dose vaccination coverage has increased to 68.6% compared with that in previous years, it has not reached national goals yet. In their study, Caucasian and English-speaking mothers were found to have higher vaccine refusal rates. Pediatric immunizations are responsible for preventing 3 million deaths in children each year worldwide (2). Despite this success, some parents continue to refuse immunizations for their children. The number of pertussis cases has increased steadily in the United States over the past 20 years with the aid of websites. Although immunization is prominently criticized on the Internet, it remains a source that many parents rely on for health information (3). It is ironic that the remarkable success of vaccine programs has resulted in a situation in which most parents have no memory of the devastating effects of illnesses such as poliomyelitis, measles, and other vaccine-preventable diseases, thereby making it more difficult for them to appreciate the benefits of immunization (4).

The benefits provided by most vaccines extend beyond the benefit to the individual who is immunized. There is also a significant public health benefit. Parents who choose not to immunize their own children increase the potential of harm to other persons (4).

There are certain concerns about vaccines that tend to fall into several different categories but are not limited to these categories. Some of the concerns are as follows: vaccines cause diseases, including autism and autoimmune diseases; vaccines contain toxins, which can harm the body in unknown ways; too many vaccines administered together can overwhelm the immune system; and vaccines are unnecessary and/or do not work.

In a study addressing the question "what would be the cost to individuals and the society if vaccination had been ceased in Turkey," it was predicted that there would be 14,296 deaths per year in the pediatric age group alone arising from the return of vaccine-preventable diseases (5).

The role of the physician in these situations is to provide parents with the risk and benefit information necessary to make an informed decision and to attempt to correct any misinformation or misperceptions that may exist.

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References

1. Vasireddy D, Yusi D, Berrak SG, Lichtenberger J. Factors Affecting Refusal Rates of the Birth Dose of Hepatitis B Vaccine: A Single Center Study. *J Pediatr Inf* 2014; 8: 159-64. [\[CrossRef\]](#)
2. Bonanni P. Demographic impact of vaccination: a review. *Vaccine* 1999; 17 (Suppl 3) : 120-5. [\[CrossRef\]](#)
3. Davies P, Chapman S, Leask J. Antivaccination activists on the World Wide Web. *Arch Dis Child* 2002; 87: 22-5. [\[CrossRef\]](#)
4. Diekema DS. American Academy of Pediatrics Committee on Bioethics. Responding to parental refusals of immunization of children. *Pediatrics* 2005; 115: 1428-31. [\[CrossRef\]](#)
5. Ceyhan M, Bayhan C, Ozsurekci Y, Malhan S, Numanoglu R, McIntosh D. Prospect of a World without Vaccines. 54th ICAAC Interscience Conference on Antimicrobial Agents and Chemotherapy September 5-9, 2014, Washington.

Author's Reply

To the Editor,

We thank Dr. Parlakay for her interest in our article (1).

In our study, we have shown that having a written hospital policy for a birth dose of hepatitis B vaccine is not sufficient to ensure high rates of neonatal hepatitis B vaccine administration (1).

In the United States, providing parents with clear information about the risks and benefits of vaccines and taking advantage of non-preventive visits for immunization are some strategies that are suggested to address the challenges (2).

Another challenge faced in the United States is that some states not only offer medical and religious exemptions to immunization requirements but also philosophical exemptions for parents who choose not to immunize their children. Policy makers must balance the need to provide individual choice with the need to protect children's health (3).

In a study by Fu et al. (4), quality improvement activities occurred from September 2007 to May 2008 at six