Phage Therapy for Prevention and Treatment of Infections in Children

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Abstract

In spite of the primary and secondary preventions from infections, the load of infectious diseases still accounts for a major part of children diseases. Irrational use of antibiotics has led to the emergence and spread of antibiotic-resistant bacteria all over the world. With the development of antibiotic-resistant bacteria, despite the development in the production of new antimicrobial compounds, the imminent return of a pre-antibiotic period is happening. Phage therapy is proposed as a preventive and therapeutic option for some infections in children. This study aimed at integrating and combining the results of phage therapy studies in children using the review method.

This study was carried out based on the authenticated electronic databases of Web of Science, Google Scholar, Pubmed, and Scopus in 1990-2018. Eighteen articles out of 8140 articles in Google Scholar, 1 article out of 4 articles in Scopus, 1 article out of 4 articles in Web Science, and 1 article out of 5 articles in Pubmed were included in the study through selecting phage studies on prevention of infections in children in 1990-2018. Results proved that 5 studies on children used polyvalent phage to prevent diarrhea, shigellosis, and gastrointestinal infections and 1 study employed phage spray to prevent gastrointestinal infection in children. Phage therapy results indicated that 7 studies used the oral use of phages for diarrhea and salmonellosis, 3 studies used the subcutaneous and topical use of phages for osteomyelitis, skin diseases, and abscess, 1 study used phage intramuscular injection for urinary tract infection, 1 study used intramuscular injection for the infection of upper respiratory tract, 1 study used it for meningitis, and 3 studies used it for sepsis treatment.

Conclusion: The use of oral cocktail bacteriophages prevents from the gastrointestinal infections caused by Enterobacteriaceae bacteria. Phages are effective for oral treatment for gastrointestinal infections, local infections for skin infections, injections for sepsis, urinary tract infections, and respiratory tract infections.

Keywords: Phage Therapy, Children, Infection, Prevention, Treatment.
چکیده
با وجود پیشگیری های اولیه و ثانویه از عفونت ها هنوز هم بار بیماری های عفونی، قسمت اعظمی از بیماری های کودکان را شامل می شود. مصرف غیرمنطقی آنتی‌بیوتیک ها سبب ظهور و گسترش باکتری های مقاوم به آنتی‌بیوتیک‌هاست، و بازگشت قربانیان سرقت در آنتی‌بیوتیک‌ها در حال وقوع می‌باشد. فازتراپی به عنوان گزینه پیشگیری و درمانی جهت بیماری‌های مقاوم به آنتی‌بیوتیک‌ها در کودکان پیشنهاد می‌گردد. این مطالعه با معرفی بکارگیری و ترکیب تابعیت‌های فاژدرمانی در کودکان به روش مروری انجام شده است.

کلمات کلیدی: فاژدرمانی، کودکان، عفونت، پیشگیری، درمان.