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temat pracy: *„Aspekty epidemiologiczne i kliniczne zakażeń rotawirusowych u dzieci hospitalizowanych w Uniwersyteckim Dziecięcym Szpitalu Klinicznym w Białymstoku w latach 2011-2013”*

Summary

Rotaviruses, first identified in 1973, are still an important cause of diarrhea in children worldwide despite the availability of immunization. At present, rotavirus disease is a significant cause of hospitalization of children in developed countries. In developing world rotavirus diarrhea causes numerous deaths due to severe dehydration and lack of immediate medical care. Given non-specific symptomatology in the early period of the disease, high infectivity and the difficulties in elimination of virus particles from the patients' environment, rotavirus infection is also a major cause of nosocomial infections in pediatric wards.

The aim of this study was: to determine the proportion of rotavirus disease in the etiology of acute viral diarrhea in children hospitalized in the Department of Pediatric Infectious Diseases, to establish seasonal patterns of rotavirus disease as well as to analyze the clinical process of infection and laboratory tests results of children with rotavirus diarrhea. The other object of the study was to evaluate nosocomial rotavirus infections in children's hospital and to determine prevalence of circulating rotavirus genotypes.

The study involved 2,225 children admitted to the Department of Pediatric Infectious Diseases in 2011-2013 due to vomiting and/or diarrhea, who eventually were diagnosed with acute viral gastroenteritis. The etiology of viral diarrhea was determined by detection of rotavirus, adenoviruses and noroviruses antigens in stool by immunochromatography. For extended studies focused on course of disease 101 children with rotavirus, 125 with norovirus and 67 with adenovirus disease were involved. Analysis of hospital-acquired infections included 479 cases reported by the Hospital Infection Control Team in 2011-2013. A pilot study was conducted to determine molecular genotype of rotaviruses in the group of 48 children hospitalized in epidemic season 2012/13.

Rotavirus was discovered in the stool of 735 children, which accounted for 33.03% of the study group. In each year seasonal pattern of rotavirus disease was observed with most cases occurring from December to May and the peak incidence recorded in March. Vomits were most

often the very first symptom of rotavirus disease. Serum alanine transaminase levels was significantly higher in rotavirus disease (median – 27; min – 10; max – 381 IU/L) compared to norovirus (median – 21; min – 7; max – 208 IU/L) and adenovirus (median – 21; min – 8; max – 435 IU/L) infections. Similar relations and significance were noted when serum aspartate transaminase were compared between study groups: rotavirus (median – 47; min – 18; max – 420 IU/L), norovirus (median – 41; min – 15; max – 320 IU/L) and adenovirus (median – 39; min – 17; max – 280 IU/L). Gastroenteritis accounted for more than a half of all hospital-acquired infections. Rotavirus infections caused 64% nosocomial infections in non-surgical and 9% in surgical words. Seasonality of nosocomial rotavirus infections was identical to that observed in the community. The molecular pilot studies showed that the leading genotype was G9P [8] (39%), while the genotypes G4P [8] and G1P [8] were found in 17 and 2%, respectively. There were significant number of undetermined genotypes.

Rotavirus was the most frequently observed etiological agent of viral gastroenteritis in the considered period. Most of the infections were observed in winter and spring season, with the peak incidence in March. Serum aminotransferases was significantly higher in rotavirus group when compared with the two other defined viral gastroenteritis groups. Rotaviruses were the predominant pathogen causing nosocomial infections in pediatric non-surgical wards. G9P[8] was the dominant serotype it the pilot molecular study.

Results of the current study bring closer insight into epidemiological and clinical aspects of acute viral diarrhea in children and confirm the significance of rotavirus as a etiological agent of both community-acquired and hospital-acquired infections.