

Correspondence

Characterization of rotavirus strains detected among children and adults with acute gastroenteritis in Gizan, Saudi Arabia

To the Editor

I read with interest the study by Kheyami et al,¹ there are certain points regarding pediatric patients in this study that need to be clarified: 1) Pediatric patients some times have respiratory tract infection associated with gastroenteritis, in your study did you come across any such cases. 2) Lowest age group in your study was 15 days old neonate. Neonates with gastroenteritis usually have systemic infection, which has to be ruled out clinically and by blood culture. What was the trend in your study? 3) What about the gender, were boys and girls equally involved. 4) Was the disease common in natives or foreigners, as there are millions of foreigners working in this country. 5) In your study did you come across bacteria or parasites in stool samples, as reported by el Assouli et al in their study.² Diarrhea is probably the leading cause of childhood mortality in the world accounting for 5-10 million deaths per year. In early childhood the single most important cause of severe dehydrating diarrhea is rotavirus infection. Rotavirus and other gastroenteritis viruses not only are a major cause of pediatric mortality but also lead to significant morbidity as a result of malnutrition. Worldwide rotavirus is estimated to cause more than 125 million cases of diarrhea annually in children younger than 5 years of age, of these 18 million cases are considered at least moderately severe, with approximately 0.6 million deaths per year. Rotavirus causes 3 million cases of diarrhea, 50,000 hospitalization, and 20-40 deaths annually in the United States.³ In both developed and developing countries approximately 90% of infants by the age of 3 years developed rotavirus infection. elAssouli et al⁴ reported that the rotavirus group A was common in the first 2 years of life in Saudi children with a peak incidence between 2-12 months of age.⁴ In Oman, Aithala et al,⁵ reported that peak incidence of rotavirus infection was seen in children less than 2 years old.⁵ Meqdam and Thwiny⁶ observed in their study from Quasim region of Saudi Arabia that rotavirus is responsible for 20-60% of severe diarrhea illness requiring hospitalization in infants and young children in developed as well as in developing countries.⁶ Ghazi et al⁷ from Makkha revealed in their study a 10% low prevalence rate as compared to other studies carried out in different regions of Saudi Arabia. This low rate could be due to the geographical location of Makkah, with very

hot and dry summer, mild winter and almost no rain throughout the year.⁷ In our study at Khamis Mushyat civil hospital (neighboring area of Gizan in Southern region of Saudi Arabia) viral gastroenteritis was ranked as the second cause of admission in pediatric wards.⁸ Rotavirus is an important cause of severe diarrhea in Saudi children. However, the available data on rotavirus strains in circulation are limited and there is an urgent need for up-to-date and comprehensive studies to evaluate rotavirus strains in circulation and identify unusual types that could be incorporated into future vaccine. We agree with the authors that there is a need to use available vaccination against this disease, Ministry of Health should include it in its immunization schedule to reduce the pediatric morbidity and mortality as carried out in Europe and America where immunization against Rota Virus is an essential part of immunization schedule.

Ghulam Nabi
Pediatric Consultant & Neonatologist
Bugshan Hospital
PO Box 5860, Jeddah 21432
Kingdom of Saudi Arabia

Reply from the Author

We would like to thank Dr Nabi for his interest in our paper.¹ The objective of our study was to assess the circulating rotavirus strains among hospitalized children and adults in Gizan area. Thus, only limited clinical data were collected and we have no information on the presence of respiratory symptoms/signs or other clinical investigations such as blood cultures and stool bacteriology. The detection rate of rotavirus among males (n=26) and females (n=28) was similar (11.7% and 12.1%). Furthermore, no information ethics status was collected. However, this study was based in 5 governmental hospitals and we therefore assumed that the majority of patients are Saudi. We agree that there is a need for further studies of rotavirus infection in order to detect any emerging serotype or unusual strain in the region that might challenge the effectiveness of rotavirus vaccines that would be considered for use in Saudi Arabia. In this regard, it is noteworthy that in our recent one-year study in Madina, we identified G12P[8] and G9P[8] strains in the country at a relative frequency of 4% and 11%.⁹ We had previously reviewed available data on rotavirus in Saudi Arabia and neighboring countries.¹⁰ In 22 studies from Saudi Arabia, the detection rate of rotavirus among cases of acute gastroenteritis ranged from 10-46% with

a median detection of 30%. The highest rotavirus detection rates were seen among children less than 2 years of age.¹⁰ We therefore agree that rotavirus vaccine should be considered for inclusion in the childhood immunization program in Saudi Arabia.

*Ali M Kheyami
Nigel A. Cunliffe
Department of Medical Microbiology
The University of Liverpool
Duncan Building, Daulby Street
Liverpool, L69 3GA
United Kingdom*

References

1. Kheyami AM, Areeshi MY, Dove W, Nakagomi O, Cunliffe NA, Anthony Hart C. Characterization of rotavirus strains detected among children and adults with acute gastroenteritis in Gizan, Saudi Arabia. *Saudi Med J* 2008; 29: 90-93.
2. El Assouli SM, Banjar ZM, Mohammed KA, Zamakhchari FT. Rotavirus infection in children in Saudi Arabia. *Am J Trop Med Hyg* 1992; 46: 272-277.
3. Bass DM. Rotavirus and other agents of viral gastroenteritis. In: Behrman RE, Kliegman RM, Jenson HB, editors. *Nelson Textbook of Pediatrics*. Philadelphia: Saunders; 2004. p. 1081-1083.
4. El Assouli SM, Banjar ZM, Mohammed KA, Milaat WA, El Assouli MZ. Genetic and antigenic analysis of human rotavirus prevalent in Al-Taif, Saudi Arabia. *J Trop Pediatr* 1996; 42: 211-219.
5. Aithala G, Al Dhahry SH, Saha A, Elbualy MS. Epidemiological and clinical features of rotavirus gastroenteritis in Oman. *J Trop Pediatr* 1996; 42: 54-57.
6. Meqdam MM, Thwiny IR. Prevalence of group A rotavirus, enteric adenovirus norovirus and astrovirus infections among children with acute gastroenteritis in Al-Qassim, Saudi Arabia. *Pakistan Journal of Medical Sciences* 2007; 23: 551-555.
7. Ghazi HO, Khan MA, Telmesani AW, Idrees B, Mohamad MF. Rotavirus Infection in Infants and Young Children in Makkah, Saudi Arabia. *Journal of the Pakistan Medical Association* 2005; 55: 231-234.
8. Nabi G. Pattern of disease in childhood. *The Practitioner*. East Mediterranean edition. Holland: Morgan Grampain; 1994. p. 798-799.
9. Kheyami AM, Nakagomi T, Nakagomi O, Dove W, Hart CA, Cunliffe NA. Molecular Epidemiology of Rotavirus Diarrhea among Children in Saudi Arabia: First detection of G9 and G12 Strains. *J Clin Microbiol* 2008; 30; [Epub ahead of print].
10. Kheyami AM, Cunliffe NA, Hart CA. Rotavirus infection in Saudi Arabia. *Ann Saudi Med* 2006; 26: 184-191.

www.smj.org.sa

Saudi Medical Journal Online features

- * Instructions to Authors
- * Uniform Requirements
- * STARD
- * Free access to the Journal's Current issue
- * Future Contents
- * Advertising and Subscription Information

All Subscribers have access to full text articles in HTML and PDF format. Abstracts and Editorials are available to all Online Guests free of charge.