

Rotavirus

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Globally, rotavirus is the leading cause of severe diarrheal disease and dehydration in infants and children under the age of 5 years. It is estimated that 600 000 children die from rotavirus worldwide each year.¹

What is rotavirus?

Rotaviruses are nonenveloped, double-shelled RNA viruses that belong to the Reoviridae family.² Rotavirus has a distinct ultrastructural appearance that resembles a wheel (the Latin for wheel is 'rota') and the virus was first identified as a cause of infant gastroenteritis by Australian researchers in 1973.

Clinical presentation/mode of transmission

The incubation period for rotavirus is usually 24–72 hours. Rotavirus infects the mature villous epithelial cells of the small intestine and presents with a range of clinical symptoms from mild, watery diarrhoea of limited duration to severe, dehydrating diarrhoea with vomiting, fever and shock. Symptoms generally resolve in 3–7 days. The infectious period usually lasts 4–8 days from the onset of symptoms but the virus can be shed for up to 30 days.²

The mode of transmission of rotavirus is predominately faecal–oral and the virus remains viable on surfaces for many hours.² Transmission of rotavirus can be reduced by hand washing but despite good standards of hygiene the disease is endemic; almost all children have at least one infection by the age of 5 years.

Current epidemiology of rotavirus in Australia

Rotavirus is the most common cause of severe gastroenteritis in young children in Australia, causing around half of all hospitalised cases of gastroenteritis in children less than 5 years of age. Prior to vaccine availability approximately 10 000 children were hospitalised with rotavirus each year, costing an estimated \$30 million in direct costs. In addition, an estimated 115 000 children aged less than 5 years visited a general practitioner and 22 000 children visited an emergency department.³ Death caused by rotavirus disease is uncommon in Australia; it is estimated that there is one death attributed to rotavirus each year.⁴

Rotavirus was not notifiable under the New South Wales (NSW) *Public Health Act 1991* until late 2009; consequently it has been difficult to ascertain the number of cases. In NSW, rotavirus infection is seasonal with most infections occurring from June to October.⁵

National Immunisation Program

From 1 July 2007 rotavirus vaccination was added to the Australian National Immunisation Program schedule. There are two vaccines currently licensed for use in Australia: RotaTeq[®], a live attenuated human–bovine reassortant vaccine, and Rotarix[®], a live attenuated human rotavirus strain. RotaTeq[®] is a three dose oral vaccine, given at 2, 4 and 6 months of age, and Rotarix[®] is given in a two dose schedule orally at 2 and 4 months of age.⁶ Both RotaTeq[®] and Rotarix[®] provide approximately 70% protection against any rotavirus disease and are more effective against preventing severe disease (range 85–100%). Rotarix[®] has been chosen for use in the NSW vaccination program.

Policy directions

In NSW under category 3, schedule 1 of the Public Health Act, rotavirus is notifiable by laboratories on diagnosis by positive stool testing. Notification will provide data which can be used to monitor the impact of vaccination on the epidemiology of rotavirus disease and to better understand the burden of rotavirus disease in NSW. In addition, submission of stools to the National Rotavirus Strain Surveillance Program will help monitor any variations in serotypes that might occur as a result of using the vaccine.⁵

References

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