
REVIEW ARTICLE

The paediatric burden of rotavirus disease in Europe

The Pediatric ROTavirus European CommitTee (PROTECT)*†

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SUMMARY

Rotaviruses are a major cause of hospitalizations for acute gastroenteritis in developed countries. This review shows the burden of rotavirus disease in <5-year-old children in Europe. An estimated 72 000–77 000 hospitalizations for community-acquired rotavirus disease occur annually in the 23 million under-fives living in the European Union (EU-25), with a median cost of €1417 per case. Annual hospitalization incidence rates range from 0·3 to 11·9/1000 children <5 years old (median 3/1000). The median proportion of hospital-acquired rotavirus disease among all cases of hospitalization for rotavirus disease is estimated to be 21%. Countries of the EU-25 require information on the burden of rotavirus disease to support introduction of rotavirus vaccines. Data on cases treated at home, medical visits, and emergency wards as well as rotavirus-associated deaths are limited. To fully evaluate the impact and effectiveness of rotavirus vaccination programmes in Europe, additional epidemiological studies will be critical and desirable.

INTRODUCTION

Rotaviruses are members of the Reoviridae [1, 2]. They are a major cause of acute gastroenteritis in infants and young children worldwide, are transmitted faecal-orally and are highly infectious. Diarrhoea and vomiting may lead to serious dehydration and death if untreated. Treatment is mainly by oral or intravenous rehydration [3]. Repeated natural rotavirus infections build up protection against disease [4]. The epidemiology is complex with co-circulation of unpredictable changes of different rotaviruses types in different regions at different times of the year [1, 2]. Rotavirus disease peaks between 6 and 24 months of age, and most clinically significant gastroenteritis episodes,

including those requiring hospital admission, occur before the age of 5 years.

A recent update of the global burden of rotavirus disease estimated 111 million episodes at home, 25 million outpatient visits, 2 million in-patient visits and over 600 000 deaths [5, 6]. Most of this disease burden is in developing countries, reflecting the large number of children aged <5 years old, as well as a higher case-fatality rate due to underlying risk factors such as malnutrition, concomitant infections and limited access to health-care. Nevertheless the relative burden of rotavirus disease (measured as incidence rates) is comparable in both developing and developed countries [5]. This indicates that hygienic measures alone are not enough. Therefore there is a need for effective prevention strategies to reduce rotavirus morbidity.

Severe rotavirus disease is largely preventable by vaccination with live attenuated oral vaccines [7]. This was demonstrated with the use of a rhesus rotavirus-based tetravalent human reassortant vaccine

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