Changes of the incidence and etiology of acute gastroenteritis after the introduction of rotavirus vaccine

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Introduction

In Stockholm vaccination against rotavirus started in 2014. We investigated changes in admission rates, etiology, age and characteristics for children 0-4 years of age admitted for gastroenteritis (GE) in our catchment area during eight seasons 2008-2016.

Fig 1. Children 0-4 admitted for GE 2008-2016

- Admission rates dropped nearly by half upon introduction of rotavirus vaccine
- This was almost exclusively due to a reduction in rotavirus infections
- The median age for children admitted with Rotavirus increased from 13.8 months to 18.5 months following introduction of the vaccine, most likely reflecting the protective effect in vaccinated infants
- There was a trend towards reduced admission rates already before vaccination, perhaps related to fewer hospital beds
- The number of children seen at the emergency department with gastroenteritis after the introduction of rotavirus decreased by about 15%

Fig 2. Viral etiology in admitted children with a positive virus test before and after the introduction of rotavirus vaccine

Risk; children with underlying conditions such as comprised immunity, gastrointestinal disease, neurological or other chronic disease

- Norovirus made up a higher proportion of the etiology in admitted children after the rotavirus vaccine was introduced
- The decline in rotavirus infections was as profound in risk children

Fig 3. Complications in patients with a positive virus test before and after the introduction of rotavirus vaccine

- Following the introduction of rotavirus vaccine less children developed hypertonic dehydration. Seizures were still common, reflecting a large number of seizures in children with norovirus infection (8% of all admitted with noroviruses)
- Children with underlying conditions did not have more frequent complications
- There was no clear difference in the frequency of complications between different viruses

Conclusions:

Rotavirus vaccination reduced the number of children admitted for gastroenteritis. No replacement with other viruses was observed. There was a trend of reduced numbers of admittances even before vaccination was started.

It would be interesting to examine the viral etiology in unadmitted children.