

Australian study: Rotavirus vaccine increases the risk of intussusception, but benefits of vaccine outweigh risks

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Both of the currently available rotavirus vaccines in Australia are associated with a small increase in the risk of intussusception in young infants, according to new research by the Institute and the National Centre for Immunisation Research & Surveillance, Sydney.

Intussusception occurs when one portion of the bowel slides into the next, much like the pieces of a telescope. This, in turn leads to swelling, inflammation, and decreased blood flow to the part of the intestines involved and can create a blockage in the bowel. In countries such as Australia, intussusception is usually diagnosed within 24 hours and promptly treated with a good outcome. No infant deaths from intussusception have occurred in over 10 years.

Rotavirus is the leading cause of gastroenteritis worldwide. In 2007, two oral rotavirus vaccines, Rotarix and RotaTeq, were licenced and included for free in the National Immunisation Program in Australia. Before vaccines were available, rotavirus "gastro" in young babies often resulted in vomiting and diarrhoea severe enough to require hospitalisation, sometimes with complications and even death (approximately one death each year).

In the study, researchers looked at the intussusception cases in children between one and 12 months of age in all states over a four year period between 2007 and 2010. The vaccination history for each case was

obtained from the Australian Childhood Immunisation Register (ACIR) to determine which rotavirus [vaccine](#) the child received and when. This allowed calculation of whether the chance of developing intussusception was higher soon after receiving a vaccine compared with before vaccination or later.

The study found there was a slightly greater chance of developing intussusception soon after receiving either rotavirus vaccine. This suggests that vaccinating babies in Australia would result in approximately 14 extra cases of intussusception per year, from about 144 cases to 158 across Australia annually. On the other hand, rotavirus vaccines were conservatively estimated to prevent 6500 hospitalisations due to acute gastroenteritis per year in Australia among children less than five years of age.

"We found a similarly increased risk of intussusception following both Rotarix and RotaTeq vaccines in Australia. However, despite a small increased risk of intussusception associated with both vaccines, the benefits of rotavirus vaccination in preventing rotavirus gastroenteritis clearly outweigh the risks," lead researcher, Dr Katherine Lee said.

In Australia, hospitalisation rates for rotavirus have dropped by over 70 per cent since vaccine introduction in 2007. Other less developed countries have even more hospitalisations and deaths from rotavirus than Australia - many are already using these vaccines, with other countries currently considering rotavirus vaccination.

"Although countries planning to implement rotavirus vaccines into their national immunisation program will need to consider their rotavirus disease burden in relation to the incidence of and ability to diagnose and treat intussusception, it seems likely that the benefits of these vaccines will outweigh the risks in other settings too," Dr Lee said.

The Australian Technical Advisory Group on Immunisation (ATAGI) continues to recommend that rotavirus vaccines should be given to babies under the Australian National Immunisation Program.

Intussusception is a rare condition and is associated with regular bouts of abdominal pain that may involve crying, distress and drawing up of the legs - parents should take their baby to be examined by their doctor if they have concerns. More advice on vaccination and intussusception as a side effect is available on the Immunise Australia website:

www.immunise.health.gov.au.

This is an internationally significant study documenting evidence of an important though rare side-effect of these vaccinations. It provides an excellent example of the value of public health surveillance and epidemiological research in precisely identifying the effects (both positive although occasionally negative) of vaccination.

Provided by Murdoch Childrens Research Institute

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