

Breastfeeding protects children against peptic ulcer bacterium

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Young children in developing countries are infected at an early age with the bacterium *Helicobacter pylori*, which can cause peptic ulcers and stomach cancer. New findings show that childrens' immune responses help in fighting the bacteria. In addition, breastfeeding and better hygiene appear to protect against infection. The results provide hope for a vaccine, according to research from the Sahlgrenska Academy at the University of Gothenburg, Sweden.

The study has been performed in cooperation between the Sahlgrenska Academy in Gothenburg and the International Centre for Diarrhoeal Disease Research in Bangladesh, an international research institute for gastrointestinal infections. This is the first time that researchers have made a detailed study of when children are infected with peptic ulcer [bacteria](#) and develop immune responses to the infection. The study followed 250 children in Bangladesh from birth to the age of two years.

The results from the study suggest that breastfeeding can protect children against early infection with the peptic ulcer bacterium. Breastmilk contains [antibodies](#), that is molecules that can bind onto foreign substances, for example bacteria, and help prevent infection.

"Children who have received high levels of antibodies to the peptic ulcer bacteria from their mothers during [breastfeeding](#) were infected later than the children who had not received such high levels of antibodies," says Taufiqur Bhuiyan, PhD (medicine) at the Department of Microbiology and Immunology at Sahlgrenska Academy.

However, at the age of two years half the children in the study were infected with peptic ulcer bacteria. Around ten per cent of the children nevertheless managed to get rid of the infection. This was probably due to the children themselves producing antibodies to the infection.

"To date we do not, however, know whether the childrens' antibodies manage to fight the bacteria on their own or whether the antibodies are a sign of a more general activation of the immune system. We have shown that the children can also activate their T cells, which release signals to bring other parts of the immune system into play," says Bhuiyan.

It also emerged that more children are infected in the spring and autumn than at other times of the year.

"This finding is very interesting, because the pattern of infection is similar to that of other infectious diseases, such as cholera. This supports the notion that important sources of infection for peptic ulcer bacteria are vomiting and diarrhoea from people affected by acute gastrointestinal infections," says Bhuiyan, who notes that a simple measure to prevent the spread of infection is improved [hygiene](#).

Another possible measure to prevent infection is to try to develop a vaccine that can be given to young children. The new knowledge on how childrens' antibodies and immune systems function during the early course of infection may help in designing new vaccines against the peptic ulcer bacterium. The task of the vaccine is to prevent the infection and consequently secondary diseases, which may be peptic ulcer and, in the worst case, stomach cancer, one of the most common forms of cancer around the world.

More information: Bhuiyan TR, Qadri F, Saha A and Svennerholm AM: Infection by *Helicobacter pylori* in Bangladeshi children from birth to two years: relation to blood group, nutritional status and seasonality.

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