

Toxigenic C. difficile resides harmlessly in infants, poses risk to adults

December 3 2013

Infants and toddlers frequently carry toxigenic *Clostridium difficile*, usually with no harm to themselves, but can serve as a reservoir and spread the bacteria to adults in whom it can cause severe disease, according to a study by a team of Swedish researchers published ahead of print in the *Journal of Clinical Microbiology*.

In the study, which involved following 42 children from birth to $1\frac{1}{2}$ or 3 years, the investigators found that *C. difficile* strains persisted for more than six months in roughly one third of such infants. A majority of the persistant colonizations belonged to either of two toxigenic ribotypes which both have commonly been isolated from adult and elderly people with *C. difficile* toxin-mediated disease in Sweden and in other countries.

Previous studies from the 1980s found that the rate of colonization peaked during the first six months of life, and then declined, as the gut microbiota became more complex. A 2000 study by the current study author found that <u>colonization</u> by *C. difficile* kept rising until about a year of age.

"We think that this is the result of an impoverishment of the <u>gut flora</u>, that infants have fewer types of bacteria in their gut, compared to 30 years ago," says first author Ingegerd Adlerberth, of the University of Gothenberg, Sweden. "It is known that <u>gut microbiota</u> of high complexity suppresses *C. difficile* growth and toxin production. That is why treatment with broad-spectrum antibiotics is a risk factor for *C*.



difficile disease."

The paper concludes with a warning that the prevalence of toxigenic *C*. *difficile* bacteria in the gut of infants and young children "provides ample opportunity for spread to individuals at risk for *C*. *difficile* disease."

C. difficile disease has been notoriously hard to treat in the elderly, who often undergo numerous courses of antibiotics without eliminating the disease. Recently, a still highly experimental treatment, fecal transplant, has proven far more successful. That treatment involves taking fecal material from a healthy person, and inserting it into the diseased patient's colon.

A copy of the manuscript can be found <u>online</u>. The article is scheduled for formal publication in the January 2014 issue of the *Journal of Clinical Microbiology*.

Provided by American Society for Microbiology

Citation: Toxigenic C. difficile resides harmlessly in infants, poses risk to adults (2013, December 3) retrieved 28 April 2024 from <u>https://medicalxpress.com/news/2013-12-toxigenic-difficile-resides-harmlessly-infants.html</u>

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