

PAEDIATRICS

Differences in the faecal microbiota of children with β -cell autoimmunity

The faecal microbiota of children with β -cell autoimmunity contains different levels of certain bacteria than that of children without β -cell autoimmunity, new results show.

Animal studies have previously shown that changes in the intestinal microbiota are associated with the development of autoimmune diabetes mellitus. These findings led a team of researchers to question whether the gut microbiota of children with multiple autoantibodies indicating increased risk of type 1 diabetes mellitus differed from that of children who are predicted to remain healthy.

The investigators took faecal samples from 18 children with two or more diabetes-associated autoantibodies (β -cell autoimmunity) and 18 children without autoantibodies matched for age, sex and HLA-DQB1 genotype. “We used 16S rRNA pyrosequencing, which gives a good picture of the composition of the bacterial microbiota,” explains author Outi Vaarala.

Children with β -cell autoimmunity had higher levels of bacteria from the *Bacteroidetes* phylum, the *Bacteroidaceae* family and the *Bacteroides* genus, but lower levels of species that produce lactate and butyrate than children without β -cell autoimmunity. In addition, the levels of two *Bifidobacterium* species that are usually dominant in faeces—*Bifidobacterium adolescentis* and *Bifidobacterium pseudocatenulatum*—were reduced in stool samples from children with β -cell autoimmunity.

The authors suggest that a lack of butyrate could be associated with the intestinal immune activation seen in patients with type 1 diabetes mellitus, but note that more work is needed to understand the role of the *Bacteroides*.

Claire Greenhill

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