Paediatric update

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Welcome to our paediatric nutrition column 'Paediatric update'. In each column, Kiran Atwal, Freelance Paediatric Dietitian, will update you on new guidance, tools and current affairs. Here, Kiran questions *'What benefits can billions of tiny microorganisms have on irritable bowel syndrome in children?'*, providing insights from a new study.

Friendly, abundant, beneficial and targeted are some terms used to describe probiotics. The literature defines them as *'live microorganisms that, when administered in adequate amounts confer a health benefit on the host'*. Probiotics are naturally found in breast milk and fermented foods, or can be added to food products or available as dietary supplements.[1] High beneficial bacterial species diversity levels in the gut microbiome can infer several immune-mediated health benefits.[2]

Recommendations for probiotics in paediatric clinical guidelines are low due to the lack of certainty from sparse, low-quality evidence. Despite this, some recommendations exist for a few conditions, for example, L helveticus R0052 and L rhamnosus R0011 in the treatment of acute gastroenteritis.[3] This came as an update to guidelines published 2 years prior (by the European Paediatric Association, the Union of the National European Paediatric Societies and Associations) that recommended other strains.[4] In clinical practice, probiotics are used and may be steered by local guidelines. They are readily available in some extensively hydrolysed infant formulas indicated for cows' milk protein allergy, which are prescribable. However, their application is less forthright in other clinical areas and often relies on individual purchase.

Impact of *Bifidobacterium longum 35624* on irritable bowel syndrome

A probiotic strain, *Bifidobacterium longum 35624* was studied in children (8-18 years of age) living in Chile with irritable bowel syndrome (IBS) diagnosed by Rome IV criteria.[5] The strain was administered daily, as a capsule, over 12 weeks. Out of 65 children, 58 completed the study with significant reductions in the number of IBS symptoms and their severity, characterised by decreases in severe-moderate symptoms and increases in mild symptoms, or remission. Small, non-significant changes in stool consistency were noted. Interestingly, most children (94.6%) had low or deficient vitamin D levels, but this was not associated with treatment response. The authors hypothesised *Bifidobacterium longum 35624* bypassed inflammatory cellular pathways to infer anti-inflammatory effects which improved IBS symptoms in this group. Changes in the gut microbiome were not measured at a species level, which would have enabled an understanding of pre-existing dysbiosis and the extent of colonisation with probiotic use. Probiotic compliance and the feasibility of capsule administration were not explored among the children. No adverse events were recorded demonstrating the safety of *Bifidobacterium longum* 35624 in the age group studied.

Whilst this open-labelled study highlights the early potential of *Bifidobacterium longum 35624* as a treatment modality for older children with IBS, the risk of biases is probable in the absence of a control arm. Furthermore, the impact of confounding variables, such as diet, lifestyle or medications, were not measured throughout the study. Changes in these variables may have influenced some of the outcomes measured.

So, what does this mean?

This study alone may not be enough to change practice, but there are benefits of strain-specific probiotics for select conditions in children. Many nuances to the application of probiotics must be considered, including strain, dosage, access, administration, timing, duration, indication, as well as cost-effectiveness. Though research on probiotics and the gut microbiome has been prolific in recent years, more comprehensive, high-quality studies are needed to confirm their use in children with IBS. Measuring long-term impact and implementation outside of research settings is vital to guide better use in clinical practice. Together, this will enable the development of guidelines beyond current recommendations.

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