bmjupdates+

Probiotics may help prevent antibiotic associated diarrhoea in children

Research question Do probiotics help prevent diarrhoea caused by antibiotics in children?

Answer Possibly. The results of a meta-analysis look promising but not conclusive.

Why did the authors do the study? Antibiotics disturb the balance of normal microflora in the gut. The disturbance sometimes causes diarrhoea, which can be serious. These authors wanted to find out if probiotics, which recolonise the gut with non-pathogenic micro-organisms, help prevent antibiotic associated diarrhoea in children.

What did they do? They searched systematically through multiple research databases for randomised placebo controlled trials testing treatment with any probiotic strain in children given any antibiotic. They looked for published and unpublished trials in any language, including trials that were under way but not yet completed, and thesis dissertations. Any included trials were graded for quality using a validated instrument (the Jadad score). They found six trials and pooled the results using both per protocol analysis and intention to treat analysis. Intention to treat analysis is more rigorous because patients are dealt with according to how they are randomised, whether or not they complete their treatment. The authors also did two subgroup analyses to explore the importance of the strain or dose of probiotic.

What did they find? The six trials were of moderately good quality overall, and included a total of 836 children who were prescribed antibiotics for one to two weeks with or without a probiotic. Seven hundred and seven completed their allocated treatment and were included in the per protocol analysis. In this analysis, those taking probiotics had significantly less antibiotic associated diarrhoea than those taking placebo (relative risk 0.43 (95% CI 0.25 to 0.75) number needed to treat = 6). In the more rigorous intention to treat analysis, the authors found no difference between the two groups overall (relative risk 1.01 (0.64 to 1.61)).

The trials were statistically heterogeneous, but when they were stratified by the strain of probiotic or the dose the authors found a significant effect from higher doses ($\geq 5\times10^9$ colony forming units) of the strains *Lactobacillus GG*, *Lactobacillus sporogens*, or *Saccharomyces boulardii* (four trials, relative risk 0.36 (0.25 to 0.53)).

None of the trials reported any serious side effects.

What does it mean? The findings from this comprehensive meta-analysis look promising, but they are not conclusive, so the authors can't recommend that children are given a probiotic with their antibiotics. Investigators doing further trials should focus on the higher doses of probiotics, particularly those strains that looked effective in subgroup analyses. They should also ensure that follow-up is as complete as possible. Two of the trials in this review had substantial losses to follow-up (37% and 29%), which could help explain why the two main analyses reported different results.

Probiotics seem safe so far, although only four of these trials looked for side effects and none of them defined what they were looking for.

Johnston BC, et al. Probiotics for pediatric antibiotic-associated diarrhea: a meta-analysis of randomized placebo-controlled trials. *CMAJ* 2006;175:377-83

This summarises a paper that has been selected by bmjupdates. To register for bmjupdates (free email alerts about high quality new papers in your favourite subjects) go to **http://bmjupdates.com/**

Editor's choice

While Rome burns

Something strange is happening in the NHS. I don't mean the chaos of constant policy change, the threat of closures, the job losses, the financial crises—we are used to all that. No, I mean that although the service functions and patients are seen and treated, many of them satisfactorily, something important is quietly dying. I don't think it is too fanciful to call it the spirit of medical professionalism. And we, the medical profession, are watching it die.

We asked Nigel Hawkes, an experienced health journalist, to give us his take on the NHS reforms (p 645). The result was unexpected. He describes a breathtaking ride through the past 15 years and concludes that, far from being privatised, medicine in England has become ever more a creature of the state. From the scrapping of the internal market in the early 1990s; through the NHS Plan in 2000; to the recent reinvention of the internal market; all that has really changed, he says, is who does the kicking and who is kicked. Increasingly centralised decision making, driven by a political imperative for constant reform, has left us victim to "a patchwork of mutually contradictory ideas struggling for dominance."

You can see the appeal of centralised decision making, but it leaves no scope for regional experimentation and diffusion of best practice. And although medicine has embraced the need for evidence based medicine, policy making remains largely an evidence-free zone. Hawkes voices the policy makers' justification: if health reforms needed proving before they were tried, nothing would ever get done. But even some evidence would be a start. In his personal view (p 661), Richard Lehman decries the lack of debate about the proposed hospital closures announced by the NHS's new chief executive last week (p 617). It is, he says "the personal responsibility of our professional leadership to mark out where the evidence lies, what it says, and what it is lacking."

But where is our leadership? And where, asks Ian Greener, are the voices raised in protest against the breakdown of Aneuran Bevan's founding concordat: that the government would fund the health service but leave its operational running to the doctors (p 660). "The government has found ways to interfere in medical practice on a remarkable scale," he writes. In the absence of coherent protest we might conclude that doctors have once more had their mouths stuffed with gold or that the medical profession wholeheartedly approves of the government's reforms. However, the most likely reason is more worrying still, as Greener agrees: that most doctors no longer have the will or power to stop the reforms.

If the government isn't listening, can the medical profession make it listen? We must, if our professional integrity is to be salvaged. Whether through established bodies (the BMA, the colleges, the large medical institutions) or through non-aligned groups led by inspired mavericks (the Cochrane Collaboration might serve as a model), the message to policy makers must be "stop, consult, and look at the evidence."

Fiona Godlee *editor (fgodlee@bmj.com)*