Primary prevention of asthma and atopic dermatitis: Use of probiotics during pregnancy and breastfeeding

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Objectives

- Review the current evidence for the use of probiotics
- Outline current treatment protocols
- Highlight issues related to probiotic preparations
What’s new in GINA 2018?

Primary prevention of asthma

KEY POINTS

- The development and persistence of asthma are driven by gene-environment interactions. For children, a ‘window of opportunity’ exists in utero and in early life, but intervention studies are limited.
- For intervention strategies that include allergen avoidance:
  - Strategies directed at a single allergen have not been effective
  - Multifaceted strategies may be effective, but the essential components have not been identified.
- Current recommendations, based on high quality evidence or consensus, include:
  - Avoid exposure to environmental tobacco smoke during pregnancy and the first year of life
  - Encourage vaginal delivery
  - Advise breast-feeding for its general health benefits (not necessarily for asthma prevention)
  - Where possible, avoid use of paracetamol (acetaminophen) and broad-spectrum antibiotics during the first year of life.
Primary prevention of asthma

– A systematic review of randomized controlled trials on maternal dietary intake of fish or long-chain polyunsaturated fatty acids during pregnancy showed no consistent effects on the risk of wheeze, asthma or atopy in the child (Best Am J Clin Nutr 2016)

– One recent study demonstrated decreased wheeze/asthma in preschool children at high risk for asthma when mothers were given a high dose fish oil supplement in the third trimester (Bisgard NEJM 2016); but ‘fish oil’ is not well defined, and the optimal dosing regimen has not been established

Primary prevention of asthma and probiotics

20 eligible trials including 4866 children

Trials were heterogeneous in the type and duration of probiotic supplementation, and duration of follow-up.

Only five trials conducted follow-up beyond participants' age of 6 years (median 24 months), and none were powered to detect asthma as the primary outcome

Azad 2013 BMJ
Primary prevention of asthma and probiotics

The overall rate of doctor diagnosed asthma was 10.7%

Among 3257 infants enrolled in nine trials contributing asthma data, the risk ratio of doctor diagnosed asthma in participants randomized to receive probiotics was 0.99 (95% confidence interval 0.81 to 1.21, I(2)=0%)

Most trials to be of high (ten trials) or unclear (nine trials) risk of bias, mainly due to attrition.

Azad 2013 BMJ
Probiotic supplementation during pregnancy or infancy for the prevention of asthma and wheeze: systematic review and meta-analysis

No evidence to support a protective association between perinatal use of probiotics and doctor diagnosed asthma.

Randomized controlled trials to date have not yielded sufficient evidence to recommend probiotics for the primary prevention of these disorders.

Extended follow-up of existing trials, along with further clinical and basic research, are needed to accurately define the role of probiotics in the prevention of childhood asthma.

**Probiotics**

Lactobacillus GG- pregnancy/infants- 1-10 billion units TID to QID 2-4 weeks pre delivery and continue 3-6 months during breastfeeding (e.g. Culturelle)
Probiotics and AD

Meta-analysis shows evidence that supports the use of synbiotics for the treatment of AD, particularly synbiotics with mixed strains of bacteria and for children aged 1 year or older.

Further studies are needed to evaluate the effectiveness of synbiotics for primary prevention of AD.
Vitamin D

Evidence is still inconclusive……..GINA 2018