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Title: Early fish introduction and neonatal antibiotics affect the risk of asthma into school age

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Body: Background: The early introduction of fish has been reported to reduce the risk of wheezing disorder in early childhood, while broad-spectrum antibiotics in the first week have been associated with an increased risk. However, it is uncertain whether the effects remain into school age. The aim of this study was to explore these risk factors for doctor-diagnosed asthma at 8 years. Methods: Data were obtained from a prospective, longitudinal study of a cohort of children born in western Sweden. The parents answered questionnaires at 6 months and 1, 4.5 and 8 years of age. The response rate at 8 years was 80% (4,051 of 5,044 questionnaires distributed). Results: At 8 years of age, 5.7% reported current doctor-diagnosed asthma. Of these, 65% had atopic asthma and 35% non-atopic asthma. In the multivariate analysis, atopic heredity, male gender and own allergic disease during infancy were risk factors for doctor-diagnosed asthma at 8 years. In addition, the introduction of fish before the age of 9 months independently reduced the risk (adjusted OR 0.6; 95% CI 0.4-0.96), while broad-spectrum antibiotics in the first week independently increased the risk of current asthma at school age (aOR 2.3; 1.2-4.2). Regarding types of asthma, the effects were significant in atopic asthma but not in non-atopic asthma. Conclusion: The early introduction of fish and neonatal antibiotic treatment influence the risk of asthma into school age. The significant effect on atopic asthma is of particular importance, as this phenotype is of major clinical significance.