Food hypersensitivity among schoolchildren
-prevalence, Health Related Quality of Life and experiences of double-blind placebo-controlled food challenges.
The Obstructive Lung Disease in Northern Sweden (OLIN) Studies, Thesis XVIII.

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Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt förv på i Triple Helix, Samverkanshuset, Umeå Universitet fredagen den 7 april, kl. 13.00
Avhandlingen kommer att förv på svenska.

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Title: Food hypersensitivity among schoolchildren—prevalence, Health Related Quality of Life and experiences of double-blind placebo-controlled food challenges.

Abstract: The aim of this thesis was to estimate the prevalence of reported food hypersensitivity (FHS), associated risk factors, and symptom expressions among schoolchildren. We also compared HRQL among children with unrestricted diet with children with total elimination of cow’s milk, hen’s egg, fish or wheat due to food hypersensitivity, and after categorisation into different phenotypes of FHS. Finally, adolescents’ and mothers’ experiences of double-blind placebo-controlled food challenges (DBPCFC) were examined and if the food had been reintroduced.

Methods: Three studies were based on the Obstructive Lung Disease in Northern Sweden (OLIN) paediatric cohort II, recruited in 2006, and included all children in first and second grade (7-8 years) in three municipalities in Norrbotten. A parental questionnaire with questions about food hypersensitivity, asthma, rhinitis, eczema and possible risk factors was completed for 2,585 (96% of invited) children. Four years later, at age 11-12 years, the cohort was followed up using the same methods and with the same high participation rate. At the follow-up, 125 children (5% of the cohort) reported total elimination of cow’s milk, hen’s egg, fish or wheat due to food hypersensitivity. These children were invited to a clinical examination and to complete a generic (KIDSCREEN-52) and a disease-specific HRQL questionnaire (FAQLQ-TF) (n=75). Based on the clinical examination the children were categorised into phenotypes: current food allergy, outgrown food allergy and lactose intolerance. A random sample of children with unrestricted diet from the same cohort answered the generic questionnaire (n=209). Children with current food allergy were invited to a further evaluation including DBPCFC. Eighteen months after the challenges, these children were interviewed about their experiences during and after the challenge (n=17). The last study was based on interviews with mothers to children referred to a paediatric allergy specialist for evaluation of food allergy using DBPCFC (n=8). The interview studies were analysed using qualitative content analysis.

Results: At age 7-8 years, the prevalence of reported FHS was 21%. FHS to milk was most common, 9%, and 14.6% reported FHS to fruits or nuts. The most common symptoms, were oral symptoms mainly caused by fruits, and gastrointestinal symptoms mainly caused by milk. The risk factor pattern was different for FHS to milk compared to hypersensitivity to other foods. No significant difference in distribution in generic or disease-specific HRQL was found among children with total elimination of milk, egg, fish and/or wheat due to FHS compared to children with unrestricted diet. However, a trend indicated that the disease-specific HRQL was most impaired among children with current food allergy compared to other phenotypes of FHS. The proportion of poor HRQL defined as ≥75 percentile was significantly higher among children with current food allergy compared to other phenotypes. A DBPCFC was an opportunity for the adolescents and the mothers to overcome the fear of reactions to food that had been eliminated for a long time. After the challenge, when the food was partially or fully reintroduced, socializing became easier and both adolescents and mothers experienced more freedom regarding food intake. A negative challenge was not consistently associated with reintroduction of the food. Reasons for reintroduction failure were fear of allergic reactions, that the adolescent did not like the food, or that living with an elimination diet was considered as normal. Conclusion: In this population-based study, one in five of children at age 7-8 years reported food hypersensitivity to any food. The generic HRQL was similar among children with and without FHS. However, poor disease-specific HRQL was more common among children with current food allergy compared to children with other FHS phenotypes. If the tested food was reintroduced after a DBPCFC, both adolescents and mothers described a changed life with less fear, and that life had become easier regarding meal preparations and social events. As reintroduction failure was present despite a negative food challenge, follow-ups and evaluations of food reintroduction should be performed independent of the outcome of a food challenge.

Keywords: Epidemiology, food-induced symptoms, food-reintroduction, interview