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Does mothers' perception of wheezing affect the nutritional status of wheezers?

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Abstract

This study was conducted to find out mothers' perception of factors associated with wheezing and its effect on the nutritional status of children with recurrent wheezing. 'Cold food' which includes all refrigerated food, curd and certain types of green leafy vegetables were perceived to be associated with wheezing by 70% of mothers. These items were not included in the diet of children with wheezing. However there was no significant difference in the nutritional intake or nutritional status of children with and without wheezing perhaps due to infrequent inclusion of the same even in the normal children's diet.

Key words: Recurrent wheezing; Nutritional status; Dietary intake; Refrigerated food

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Introduction

Dietary inadequacy is one of the causes of malnutrition which is still an important public health problem in India [1,2]. Wheezing is a common clinical condition in children linked with several food items [3-5]. Therefore, restriction of food items for fear of causing wheezing might compromise the dietary intake of children and their nutritional status. In this background, a hospital based study was conducted to find out the type of food perceived by the mothers to be associated with wheezing in children, possible consequent restriction of these in the diet and the impact, if any, on nutritional status of children with recurrent wheezing.

Methods

This study included children attending the government General Hospital Puducherry after obtaining an informed verbal consent. Two episodes of wheezing during the previous six months were taken as operational definition of recurrent wheezers [6]. All children aged 2-12 years who attended the Pediatrics OPD between July to December 2008 and fitting the definition were included in the study. They were compared with 98 age and sex matched children without any history of wheezing. Mothers of both children with and without wheezing were interviewed using a structured and pre-tested questionnaire with exhaustive list of food items perceived to be associated with wheezing reported during pretesting. Dietary intake was assessed with a questionnaire using a 24 hour recall method. A detailed clinical examination was carried out including height and weight measurements. Nutritional status was assessed taking weight for age and height for age and Body Mass Index (BMI) into consideration as per Indian Academy of Pediatrics recommendation. The data was analyzed using Epi-info 3.5.1 and SPSS version 16.0. Chi square and Student "t" tests were used for comparing proportions and mean respectively.

Results

There were 154 children out of which 56 had episodes of recurrent wheezing and 98 had no history of wheezing. Of all mothers, 70% perceived 'cold food' which includes all refrigerated food, curd and certain types of green leafy vegetables to be associated with wheezing. Other food items mentioned were bananas (50%), grapes (36%) and other fruits (39%). Among the respondents, 88% considered infection and 64% change of water as an important contributory factor for wheezing.

The mean calorie intake of wheezers and non-wheezers were 54.2 ±12.3 % and 55.7 ± 4.8% of the recommended dietary allowance (RDA) respectively while that of proteins was 70.7 ±19.8 % and 69.9 ±15.08 % . The differe-

Table 1. *Comparing weight, height, BMI and nutritional intake of children with and without wheezing*

Parameter	Wheezers (n=56)	Non-wheezers (n=98)	P value
Weight <3rd centile	8 (14 %)	23 (23 %)	0.25
Height < 3rd centile	5 (9 %)	10 (10 %)	0.97
BMI < 5th centile	31 (55 %)	42 (42 %)	0.18
Mean nutritional intake as percentage of recommended dietary allowance (SD)			
Calories	54.2 (15.5)	55.7 (16.5)	0.58
Proteins	70.7 (28.0)	69.9 (30.0)	0.88

nce in these was not statistically significant in all age groups ($p>0.05$). While comparing the nutritional status of both the groups it was observed that there was no significant difference ($p>0.05$) in the proportion of children who were undernourished, stunted or whose BMI was less than 5th centile between both the groups. However it was observed that the mean BMI of children with recurrent wheezing showed a trend towards lower values (Table).

Discussion

Children with recurrent wheezing are found to have restrictions on diet, besides restriction in other activities. (5,7). In this study it was observed that consuming chilled food or drink was the most common dietary factor thought to be associated with wheezing which is similar to that observed by workers from Srilanka [5]. On the other hand eggs, tomatoes and cow's milk which were considered causative factors of wheezing in that study were not linked with wheezing in the current study. There is perhaps regional variation in the type of diet perceived to be associated with wheezing. It has generally been observed that a diet rich in fruits and vegetables reduce the risk of wheezing. [8,9]. Infection was felt to be the most common cause of wheezing in this study probably because wheezing in these children is more due to viral infection rather than allergy. Intestinal helminths and overcrowding seen in developing countries are found to be protective against wheezing and other atopic disorders in children [10,11].

We found that the nutritional intake of children with recurrent wheezing was not significantly different from non wheezers. Murray et al [12] also observed that the nutritional intake of wheezers is similar to that of non wheezers although their dietary content of polyunsaturated fatty acid was higher in comparison. Food items linked with wheezing in this study have a low calorie density and do not form part of the daily diet of children. This is perhaps one of the reasons for a similar nutritional intake and lack of statistically significant difference in the nutritional status between wheezers and non wheezers in this study. However the BMI showed a negative trend among wheezers which could perhaps be due to the illness itself or due to a reduced intake because of restrictions. A larger study with age stratification could perhaps throw more light in this matter.

In conclusion, although several food items are linked to wheezing in children and there is a dietary restriction of these items, there is no statistically significant difference in the dietary intake or nutritional status of children with and without wheezing perhaps due to the low calorie density and infrequent inclusion in the diet of these restricted food items.

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