



Knowledge and Experiences of Grandmothers on Food Allergies in Children

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ABSTRACT

Objective: To investigate the knowledge and experiences of grandmothers from two different socioeconomic groups on food allergies seen in children.

Materials and Methods: A 12-item questionnaire related to knowledge and experiences of grandmothers on food allergies in children was distributed to the grandmothers coming from two different socioeconomic groups in Istanbul.

Results: A total of 300 grandmothers were included in the study. Each of the high income (first group) and lower-middle income (second group) socio-economic groups consisted of 100 study and 50 control grandmothers respectively. In both the study and control groups, the grandmothers stated that the skin symptoms most commonly would remind them of food allergies. More grandmothers from the first study and control groups than the second ones accepted that food allergy might be fatal. Most grandmothers in both the study and control groups said that goat's milk could be given to children with cow's milk allergy. The grandmothers stated that most of the nutrients that might contain cow's milk and hen's egg - especially those made from wheat flour - could be given to children allergic to these foods.

Conclusion: Grandmothers in our country, who are responsible for the care and nutrition of children should also be trained in terms of food allergies and especially food-related anaphylaxis.

Keywords: Food allergy, anaphylaxis, grandmothers, children

INTRODUCTION

Food allergies have increased dramatically in recent years and are considered a serious public health problem, resulting in significant morbidity and occasional mortality (1). Today, the only treatment for food allergies is strict avoidance of anything containing the culprit food (2). To prevent any accidental ingestion, all caregivers should be alert. Naturally, the parents are primarily responsible for the care of children, but secondarily responsible people vary from community to community according to the socio-economic and cultural characteristics of that community. While professional caregivers are often employed in developed countries, other members of the families, and particularly grandmothers, are often responsible for care of children in underdeveloped and developing countries.

Since all of the caregivers have an important role in feeding the children with food allergies, they should be aware of the symptoms and risks of food allergies (3,4). Grandmothers have a very important role in child care and they significantly guide the parents with their knowledge and experience in Turkey. However, grandmothers have been caught unexpectedly in this rapidly increasing problem, i.e., food allergy. In this study, we aimed to investigate knowledge, experiences, and approaches of grandmothers from two different socioeconomic groups on food allergies.

MATERIALS and METHODS

The study was conducted with grandmothers from the upper income socioeconomic group (Acibadem International Hospital, Istanbul) and from the lower and

middle income groups (Kanuni Sultan Suleyman Teaching and Research Hospital, Istanbul), whose grandchildren had already been followed in outpatient departments of childhood allergy and immunology. The diagnoses of food allergies were based on the current established methods (5,6) and the children were followed regularly. The aim of the study was explained to grandmothers and verbal informed consent was obtained. Then a 12-item questionnaire (Table I, II) was distributed to the subjects. The questions were asked at the scene and the answers were recorded by a physician or a nurse. The questions and the choices of answers were read slowly and repeatedly by the researchers for the grandmothers who were illiterate. Grandmothers of children in the same hospitals who were admitted to the pediatric outpatient clinics for other reasons (such as respiratory tract infection or healthy child control), but without any food allergies, constituted the control groups. The study protocol was approved by the ethics committee of the Sultan Suleyman Teaching and Research Hospital in Istanbul.

Statistical analysis was performed using MATLAB (version R2017a). The Mann-Whitney U test was used to compare the groups. A p value <0.05 was considered to be statistically significant.

RESULTS

A total of 300 grandmothers comprised the four groups. Each of the high- income (group 1) and lower-middle income socio-economic (group 2) groups consisted of 100 study and 50 control grandmothers, respectively (Table I). The mean age was 60.3 years in group 1 and 57.5 years in group 2 ($p>0.05$). Both the numbers of offsprings and grandchildren were higher in group 2 (3.91 vs 2.21 and 3.94 vs 3.12, respectively, $p<0.05$ for each). While grandmothers in the first group recalled food allergies in 34% of their own children, this rate was 69% in the second group. In both groups, the most commonly responsible foods were cow's milk, hen's egg and nuts, respectively. The same foods were the culprit in the patients similarly (Table II). Grandmothers in both the study and the control groups stated that the most common symptoms that would remind them of food allergies were related to the skin. More grandmothers from the first study and control groups than the second ones accepted that food allergy might be fatal ($p<0.05$). Most of the grandmothers in all four groups stated that goat's milk could be given to children with cow's milk allergy ($p>0.05$). The grandmothers stated that most of the nutrients that might contain cow's milk and hen's egg - especially those made from wheat flour - could be given to children allergic to these foods (Table II).

Table I. Demographic and other characteristics of grandparents.

	Group 1 (n=100)	Controls 1 (n=50)	Group 2 (n=100)	Controls 2 (n=50)
Age (years)				
40-50	0	1	14	9
51-60	47	31	47	21
61>	53	18	39	20
Educational status				
Primary school or less	62	15	90	44
Middle school/high school	32	23	10	5
University	6	12	0	1
Number of offspring				
<2	65	32	26	14
3-4	23	17	44	28
≥5	12	1	30	8
Number of grandchildren				
<2	29	29	41	21
3-4	59	19	21	16
≥5	12	2	38	13

Table II. Familial food allergy status and experience and knowledge of grandparents.

	Group 1	Controls 1	Group 2	Controls 2
1. Have any of your children had one or more of the following diagnoses when they were younger? (n)				
Asthma	5	5	10	2
Hay fever (allergic rhinitis)	10	4	8	0
Eczema (atopic dermatitis)	8	1	20	1
Food allergy	34	0	69	0
2. Which one or more of the following was the culprit food in your children in their childhood?				
Cow's milk	22	1	46	1
Hen's egg	14	2	27	0
Nuts	7	0	11	1
Fish	1	0	2	0
Wheat	1	0	2	0
Other	4	1	8	0
3. Which one(s) of the following is the culprit food in your grandchildren now?				
Cow's milk	48	-	50	-
Hen's egg	32	-	37	-
Nuts	8	-	12	-
Fish	4	-	2	-
Wheat	1	-	3	-
Other	2	-	7	-
4. Which one(s) of the following symptoms in a child remind you of food allergies?				
Itching in the skin	18	29	44	13
Generalized hives	58	33	47	18
Swollen lips-tongue	15	27	26	6
Nausea, vomiting	4	2	23	3
Blood in the feces	4	2	8	5
Wheezing, coughing	1	4	16	2
5. Can a child die due to food allergy?				
Yes	48	32	32	16
No	42	14	41	28
I have no idea	10	4	17	6
6. Which one(s) of the milks below can be given to a child allergic to cow's milk?				
Sheep's milk	8	1	4	7
Goat's milk	75	42	85	29
Water buffalo's milk	1	1	1	11
None	16	6	10	3
7. Which one(s) of the following foods can be given to a child allergic to cow's milk?				
Yoghurt	10	2	7	10
Cheese	0	2	1	2
Butter	7	0	2	2
Cake and biscuits	14	9	17	10
Usual bread	67	11	44	15
None	12	24	35	22
8. Which one(s) of the following foods can be given to a child allergic to hen's egg?				
Mayonnaise	0	0	4	3
Usual bread	65	30	44	17
Egg-containing soup	0	0	4	3
None	20	19	46	28

DISCUSSION

Food allergies in children is a rapidly growing health problem worldwide (2). Unfortunately, there are no curative methods for the management of food allergy and the only effective management is avoiding exposure to the culprit foods and the treatment of symptoms (6,7). However, management of food allergies, and especially allergen avoidance, places an emotional burden on parents and other caregivers and is associated with decreased quality of life of these subjects (8-11). In addition, some parents change their lifestyle in order to keep their allergic child safe. They also do not want to eat at restaurants and they decrease their travelling and other social activities with their child (9-12).

Although any food can cause allergic reactions, eight foods (cow's milk, hen's egg, peanuts, tree nuts, fish, shellfish, wheat, and soy) are responsible for about 90% of all food allergies (13). When we look at the offending foods, the grandmothers in both socio-economic groups reported that the most commonly responsible foods in their own children were cow's milk, hen's egg, and nuts. However, we do not know the reliability of this information because it is based on recall. The same foods are also responsible in our patients but the diagnoses of the grandchildren were established by more reliable methods (i.e. sIgE and skin prick tests). The rapid and dramatic increase in the prevalence of allergic diseases in recent years has led to very serious differences in knowledge about food allergies among individuals caring for children (14).

The basic thing expected from all caregivers in the management of food allergy is that they should vigilantly monitor the food intake of their allergic children by reading all product labels, understanding cross-contamination issues, and warning the people who may feed the allergic children. The parents in the upper-middle income groups in our country give their children to daycare centers after 3 years of age. Generally grandmothers, and rarely nannies, help the mothers in childcare in the first three years at home. When the mothers work, the grandmothers are mainly responsible for the childcare and feeding. However, it is not known if grandmothers are aware of food allergies. Food allergy knowledge -i.e., accurate information pertinent to diet management, symptoms and treatment, and disease processes—is necessary for the appropriate management of this long-lasting disease(15). Parents and other caregivers cannot be expected to adhere to health management

recommendations they do not know of or understand (15,16). The knowledge and experience of grandmothers in childcare generally depend on the information they have acquired while they were raising their own children. Due to the rapid increase in the prevalence of food allergy in recent years, many grandmothers suddenly faced this problem without having enough information. In this study, nearly half of 200 (51.5%) grandmothers whose grandchildren have food allergies reported that they had seen such a problem in their own children before. Many studies have proven the presence of a very poor correlation between self-reported and challenge-confirmed food allergies (17). Therefore, we do not know how accurate this information is and it is impossible for us to compare the prevalences of food allergy between our study groups and their parents.

Food allergy may present with a variety of symptoms on the skin (e.g. urticaria and angioedema), and in other systems such as the respiratory and gastrointestinal tracts. Among these, food-induced anaphylaxis is the most frightening clinical picture and may lead to death if prompt treatment is not administered (18). Because of this, caregivers responsible for the children with food allergies should be aware of the fact that food allergies may be fatal. Since most of the recent grandmothers have never seen any child severely allergic to any food, they are not well at recognizing the most common symptoms of food allergies. Most of the grandmothers in our study knew skin and mucosa signs as the features of food allergies. Another finding in our study is that more than half of the grandmothers (51.6%) did not know that food allergies may lead to death (Table II). The children under the nursing of grandmothers may experience any allergic reaction, including anaphylaxis. Therefore, grandmothers should be familiar with the signs and symptoms of food allergies. A meta-analysis on the prevalence of food allergy estimated that egg and cow's milk allergies affect 0.5-2.5 % and 0-3 % of young children, respectively, in the western world (19).

Cow's milk and egg allergies are the leading causes of food allergies and the grandmothers reported that their children also had similar allergies in our study. In spite of some small differences between the two groups in terms of other foods, the grandmothers reported similar food allergies in their children.

CONCLUSION

It is necessary to educate the grandmothers who are

responsible for child care at least as much as mothers in terms of food allergy and especially food-induced anaphylaxis in our country as in many other developing countries. The best opportunity for this is the attendance of grandmothers in children's hospital visits and their training by the physicians' themselves. It is essential to do this for the prevention, early recognition, and appropriate treatment of serious reactions that might occur in the future.

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