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Research Article

Impact of Food Allergies on the Allergic Person's Travel Decision, Trip Organization and Stay Abroad

Abstract

This survey evaluated the impact of food allergy on the allergic person's travel decision, trip organization and stay abroad. Hundred and two persons have participated. Results show that food allergy prevents 14% of respondents from travelling. Of the 81 travellers, 49% gets anxiety and 46% fear from food allergy. Difficulties related to food intake at restaurants were expressed by 67% of travellers. It is shown that allergic travellers adopt preventive behaviours and avoidance attitudes of allergenic products such as carrying their own food, reading labels, avoiding consumption of local foods, questioning about food composition. To prevent reaction after accidental ingestion, 69 travellers carry their emergency kit during travel. However, allergic accidents occurred to 30% of travellers. Food served in restaurants and homemade foods were the principal causes. This study shows the need to inform allergic patients about the regulation on the provision of food information to consumers and how to manage food allergy during travel, the need to establish a policy addressing training of restaurant staff about food allergy.

Introduction

IgE-mediated food allergy is a disease characterized by an immune reaction against an ingested food causing symptoms that can endanger people at high risk of allergic emergency (anaphylactic shock, laryngeal angioedema, and severe acute asthma) [1]. Its prevalence is estimated at 5% in adults and 8% in children [2]. Management of food allergy relies on developing preventive avoidance strategies of the allergen involved and on treating symptoms from allergic reactions when accidental ingestions occur. Research on oral immunotherapy is being developed to establish food allergens tolerance [3].

At the international level, regulators have issued texts on mandatory labelling of priority allergens so as to limit the risk of allergic accidents and to better inform consumers about their food choices. For example, in Europe, the directive 2007/68/CE of November 27 2007 amending the annex III bis of the directive 2000/13/CE of the European Parliament and of the Council as regards to certain food ingredients makes it mandatory to declare on labels 14 food ingredients considered at risk in Europe [4]. Gendel highlighted the differences between food labelling regulations in different countries [5]. The number of mandatory allergens to be labelled is not the same: 14 allergens are concerned in the European Union, 8 in the US and China, 5 in Japan. Eight foods present in most of the lists are milk, wheat, egg, peanut, fish, crustaceans, soy and tree nut. Depending on the country, labelling requirements concern either a food group or a particular food. Therefore, Codex, European Union, Australia/New Zealand, and Hong Kong specify "cereals containing gluten" by a list identifying species (wheat, rye, barley, oats, spelt, kamut or their hybridized strains) that have to be labelled. In the US only wheat is included, while Japan and Korea include wheat and buckwheat; despite the fact that buckwheat does not belong to the family of cereals. Aboard of airline companies, there are no policies or regulations that impose labelling of allergens. Airline catering companies are on an autonomous area that does not abide by the laws of the country. Allergic accidents have been reported in literature especially regarding peanut and nut allergies [6-9].

Few studies have investigated the impact of food allergy on the travel decision, trip organization and stay abroad. Barnett et al have underlined the difficulties related to travel airlines and restaurants during travel, particularly for nut allergic persons [10].

This study using online questionnaire aims to evaluate the impact of food allergy on travel abroad.

Method

Design

To determine the impact of food allergy on the travel decision, trip organization and stay of an allergic person, an internet-based qualitative survey was conducted through an anonymous questionnaire posted online via Lime Survey software.

Recruitment

The link to the web-based survey was broadcasted on the site of the French Association for the Prevention of Allergies (AFPRAL) and its Belgian counterpart/homologue (OASIS) and their social networks as well as the Regional Observatory site of Health and Social Affairs of Lorraine (ORSAS Lorraine, France) for two and a half months. The questionnaire was written in French and there was no age limitation. The respondents provided answers voluntarily.

Data generation

The questionnaire included 45 questions targeting the following themes: population characteristics, level of education and training to manage food allergy, behaviour regarding their allergy, decision to travel, organisation for travel and difficulties encountered while abroad.

Data analysis

Data were collected via lime survey. Questions were treated separately and content analysis enabled thematic coding. Descriptive and qualitative analysis of the results were conducted. Symptoms were graded according to the modified score of Astier et al: 0 is used for no symptoms, 1 for abdominal pain that resolved without requiring medical treatment, rhinoconjunctivitis, urticaria fewer than 10 papulas, rash (eczema onset), laryngeal pruritis, 2for one organ involved, abdominal pain requiring treatment, generalized urticaria, non-laryngeal angioedema, mild asthma (cough or fall of peak expiratory flow < 20%), 3 for two organs involved, 4 for three organs involved or asthma requiring treatment or laryngeal oedema or hypotension, and 5 for cardiac and respiratory symptoms requiring hospitalization in intensive care [11,12].

Results

Population characteristics

One hundred and two allergic persons (62 women / 40 men) aged 20.2 ± 14.6 years completed the questionnaire. Respondents were French (93), Belgian (2), Canadian (1), Portuguese (1), Venezuelan (1), Switzerland (1), Franco-Canadian (1) and Franco-Portuguese (1). One respondent did not answer this question.

A medical doctor diagnosed food allergy for 97% of the respondents; allergy was present for more than five years for 64%, between one and five years for 33%, and less than a year for 4%. Twenty four percent of respondents were allergic to one allergen and 76% to more than one. The main allergens responsible for food allergies were tree nuts (52%), peanuts (43%) and milk (31%) (Figure 1). Forty five percent of respondents had allergies to foods other than the ones listed in the EU list of mandatory allergen labelling. According to the score of Astier et al, the severity of previously reported allergic reactions was in 51% of grade 4, 31% of grade 3, 13% of grade 2, and in 5% of grade 1.

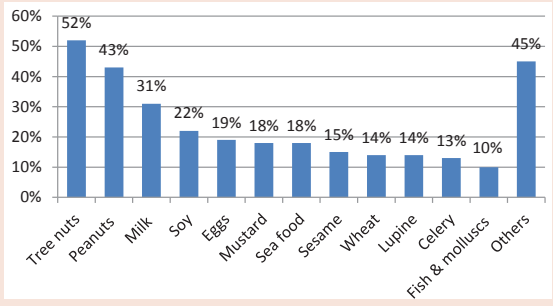

Figure 1: Allergens responsible of food allergies in the responders.

Level of education and training to manage food allergies

The 102 respondents have learned about their allergies from different health professionals: medical doctor specialist in food allergies (92%), general practitioner (28%), specialized dietician in the field of food allergies (7%) and nurse specialized in food allergies (4%). Alternative sources of information were also used: website for food allergy (36%), internet forum for allergic patient (31%), patient associations for food allergies (21%), another allergic person (6%). Therapeutic education sessions were proposed to 19of the 102 respondents and 14 participated to these sessions. Ninety five percent of respondents have said they read food labels.

Impact on decision to travel

Twenty one respondents did not travel, 14 due to their allergy and 6 for personal reasons, one respondent did not answer this question.

Fear is the main reason for not travelling for 5 respondents; difficulties in managing allergy abroad was mentioned by 4 persons, language barrier was the reason for one respondent for not travelling, tedious travel arrangements were responsible for this non-travel for one respondent.

Five persons stated that food allergy determines their travel destinations and their means of transportation.

Travel organisation

Sixty nine of the 81 travellers (85%) carry their emergency kit during travels.

Allergic persons had information to manage food allergy during travel from health professionals (13%) and from therapeutic education sessions (1%), forums for allergic patients (20%) and other allergic persons (4%). Information about travel was found on food allergy internet website (49%), travel agency (4%), touristic site (1%) and dictionary (1%).

Seven percent of travellers said they do not know how to follow an avoidance diet abroad. Legislation regarding allergens is not known by 40 travellers (49%). List of mandatory allergen labelling in the European Union is not known by 38 (47%) and list in the country visited was not known by 57 (70%) travellers. Translation of the allergen in the language of the country visited was not known by 18 (22%) of travellers.

Behaviour of allergic persons during travel and stay

Of the 81 travellers, 49% expressed anxiety and 46% experienced fear.

During travel, 35 persons (43%) informed the transport company of their food allergy and12 (15%) were served with alternative food choices taking into account their food allergy. For the 36 persons (44%) who did not inform the company about their allergy, they managed their food aboard transportation companies on their own. Passengers say they take the following measures: 17 carry their own food; 6 ask for food composition on board, 3 persons did not do anything and 3 are prudent, 2 travellers do not eat during their

journey and 1 person takes his own car. Four have their emergency kit accessible during travel in case of an allergic reaction during travel.

During their stay, seventy five (65%) travellers buy products already existing in their country and 8% do not check food labelling for ingredients. Three respondents did not answer this question. Forty two (52%) travellers buy pre-packaged products they have not consumed before and 2 without understanding the label on pre-packaged products. Thirty six (44%) travellers do not buy products not consumed before, the following reasons are given: 17 did not want to take a risk of buying unsafe products, 7 had fear of having an allergic reaction, 3 could not get access to the exact composition of the products, 3 did not trust the products, 2 did not understand the language, 2 had their own food with them, 2 could not find allergen free products.

Difficulties encountered by food allergic travellers in restaurants abroad

Fifty four (67%) allergic travellers expressed difficulties related to their food intake at the restaurants. Difficulties encountered were: language barrier [16], issues related to the access of the exact food composition [15], lack of knowledge of staff regarding food allergies [7], 2 did not answer this question (Table 1).

Allergic accidents during travel and stay

Twenty four travellers have experienced allergic reactions to foods while travelling in different countries. Half of accidents occurred outside the European Union (Table 2). All accidents occurred due to allergens listed in the EU labelling legislation. Two accidents happened on board of a plane. Causes of accidents were identified in 13 cases. Nine of the 13 accidents happened in a restaurant, 2 had allergic reaction due to homemade preparations and 2 respondents discovered a new food allergy. Allergens responsible for these accidents were milk, peanut, egg, celery, crustaceans and almonds.

Discussion

Food allergy appears to have an important impact on the travel decision, trip organization and stay of an allergic person. It prevents 14% of allergic persons from travelling abroad, puts fear in 46% and anxiety in 49% of those who travel.

Allergic travellers searched for information to manage allergy during travel and stay. Around 50% of search was made through internet sites for food allergies, 20% from forums for allergic persons and only 13% sought information from health professionals. This finding shows the important role of internet regarding easy access for information and the importance of patients associations and forums in spreading this information specially when research has shown the future role of internet and social media in food risk and benefit communication [13].The use of internet for the diffusion of the questionnaire select respondents mastering the Internet tool and constitute a bias of selection. It is likely that these persons are more inclined to search for information on website. Collaboration between healthcare professionals specialised in food allergy and webmasters is important to propose the most relevant information to manage the travel of a food allergic person. Despite the French law that promotes implementation of therapeutic education among allergic persons, it was only proposed to 19% of the respondents. Avoidance diet and allergen labelling play a key role in the management of food allergies, 7% of respondents declared not knowing how to follow avoidance diets during travel and around 50% stated not knowing the existence of allergen labelling legislation.

Table 1: Difficulties encountered in restaurants.

Difficulties encountered in restaurant	Respondent (52/54)
Language barrier	16
Access to the exact food composition	15
Lack of staff knowledge about food allergy	7
lack of seriousness regarding the severity of food allergy	5
Lack of confidence thatdishes served do not contain allergens	3
Allergen not considered a priority one in the country visited	2
Inability to consume local foods in the country visited	2
Refusal of restaurants to serve because of food allergy	2

Table 2: Country where allergic accidents occurred.

Inside European Union (number of accidents)	Outside European Union (number of accidents)	Transportation company number of accidents)
Spain (5)	Tunisia (5)	Airline company (2)
Portugal (4)	Brazil (2)	
England (2)	Thailand (2)	
France (1)	Egypt (1)	
Greece (1)	Israel (1)	
Germany (1)	Turkey (1)	
Polynesia (1)	Vietnam (1)	
Martinique (1)	Argentina (1)	
Ireland (1)	United states of America (1)	
Italy (1)	India (1)	
	Guatemala (1)	
	Norway (1)	

Allergic travellers adopted preventive behaviours and avoidance attitudes during travel and stay. Aboard carriers, 7 were vigilant regarding food composition served on board and 4 carried their emergency kit in case of an allergic accident. Seventeen decided not to take risks and carried their own food. During stay, 92% of allergic travellers read food labelling composition on pre-packaged products and 44% avoided products they have not consumed before. This study shows that allergen labelling has an impact on allergic persons' purchasing behaviours during travel and dictated their food choices. It is important to note that pre-packaged foods are not responsible of accidents that occurred during travel in our population. Travellers mentioned difficulties in restaurants due to language barrier, lack of seriousness regarding severity of food allergy by restaurant staff. They also had difficulties trusting products served were safe. These findings join those of Barnett et al., who stated that some allergic travellers preferred not to travel abroad, go on holidays locally to stay safe, others reported that food allergies played a key role in deciding travel destinations. They reported difficulties related to restaurants and restricted their food intake to plain foods and did not consume foreign cuisine [10]. The use of a pictogram on food labels would help allergic travellers to overcome the barrier of language and reading.

Despite adopting preventive behaviours and avoidance attitudes, 30% of travellers experienced allergic accidents abroad. This high

prevalence of accident is all the more worrying as it concerns a population of respondents contacted via patient organization who can be considered as informed consumers. Nine of the 13 allergic accidents were due to food consumed in restaurants; 2 to preparations of homemade foods and 2 discovered new allergies. Lack of knowledge of food allergy by catering managers (restaurants, bars, hotels) affects the safety of allergic persons and underlines the need to establish a policy in restaurants to train them on food allergy and how to adopt specific practices to prevent allergic accidents. These findings are in agreement with the study of Ajala et al that demonstrated little knowledge of managers and food handlers regarding food allergy and that there is no policy regarding allergen management in restaurants [14]. In UK, restaurant staff's knowledge in food allergies showed considerable misunderstandings of facts about this disease [15]. Thirty eight percent of restaurant staff believed that drinking water could dilute the allergen in case of allergic reaction and 21% considered that removing allergen from a finished meal would make it safe to consume by an allergic person. As shown by Bailey et al, training of restaurant staff improves their knowledge in food allergy and induces changes in practices in the kitchen to serve meals for allergic consumers [16].

Allergens responsible of accidents were milk, peanut, celery, egg, crustaceans and almonds and they are all listed in the EU legislation. These findings highlight the importance of the application of the EU regulation 1169/2011 stating that when food is consumed in a place where food is being served, the professional should inform consumers with free and direct information regarding allergens and should maintain a written record of the presence of allergens in the dishes offered.

Conclusion

This survey revealed the significant impact of food allergy on allergic persons' travel decision, trip organization and stay abroad. Attention is drawn to the lack of knowledge concerning allergen legislation. The need to provide allergic travellers with adequate strategies on how to deal with food allergy abroad without fear of allergic reactions is highlighted. The importance to train restaurant staff about food allergy is underlined to prevent accidental ingestion. Controlling the risk of food allergy must be part of an international debate to harmonize the regulations and allow access of all citizens to the information needed to manage food allergy in the country visited. Legislation on air and maritime space must be specified.

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