

The significance of the family factor in supplementing the diet with magnesium among Lublin university students

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*European Journal
of Medical Technologies*
2013; 1(1): 48-52

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www.medical-technologies.eu
Published online 14.10.2013

Streszczenie

Środowisko rodzinne jest jednym z głównych czynników kształtujących zachowania zdrowotne. Rodzice przekazują swoim dzieciom wiedzę dotyczącą działań profilaktycznych w zakresie zdrowia, zdrowego odżywiania, aktywności fizycznej ale także dotyczącą suplementacji diety w niezbędne składniki odżywcze w celu zapobiegania występowaniu niedoborów w organizmie. Celem badań była ocena, czy istnieje zależność pomiędzy czynnikiem rodzinnym a zachowaniami prozdrowotnymi dotyczącymi suplementacji oraz wiedzy na temat magnezu. W badaniu ankietowym uczestniczyło 743 studentów uczelni lubelskich. Przebadano 513 studentów kierunków medycznych, 149 studentów kierunków ścisłych oraz 81 studentów kierunków humanistycznych. W badanej grupie było 77,3% kobiet (N=575) oraz 22,7% mężczyzn (N=168). Do oceny zachowań zdrowotnych użyto kwestionariusza ankiety autorskiej. Kwestionariusz zawierał część metryczkową oraz pytania dotyczące zachowań respondentów i najbliższej rodziny odnośnie do przyjmowania preparatów magnezowych oraz wiedzy respondentów na temat magnezu. Otrzymane wyniki poddano analizie statystycznej z wykorzystaniem programu Statistica. W wyniku przeprowadzonych badań stwierdzono istotne znaczenie czynnika rodzinnego w suplementacji diety respondentów preparatami magnezowymi. Zauważono dodatnią korelację pomiędzy posiadaną wiedzą wśród badanej grupy studentów dotyczącej magnezu a uzupełnianiem diety w preparaty magnezowe wśród najbliższej rodziny.

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Słowa kluczowe:

magnez, suplementy
magnezowe,
zachowania
zdrowotne

Abstract

The family environment is one of the most important factors shaping health behaviors. Parents convey their knowledge concerning preventive health measures, healthy foods, importance of physical exercises and supplementation of diet in necessary nutritious elements which prevent various deficiencies to their children. The aim of the study was the assessment of the dependence between the family factor and pro-health behaviors relating to diet supplementation, as well as the assessment of general knowledge on magnesium. 743 students of Lublin universities participated in the study. Among them were 513 students of medical sciences, 149 students of exact sciences and 81 students of the humanities. The study group consisted of women in 77,3% (N=575) and men in 22,7% (N=168). An author made questionnaire was used to assess health behaviors. The questionnaire consisted of two parts, a part collecting personal data and questions regarding the behaviors of respondents as well as their closest family with respect to magnesium supplementation consumption and their general knowledge on magnesium. Obtained results were statistically analyzed with the use of Statistica software. The results of the questionnaire reveal significant importance of the family factor in supplementation of diet with magnesium. Positive correlation between the knowledge on magnesium in the examined group of students and supplementation of diet with magnesium in the closest family has been noticed.

Key words

magnesium, magnesium supplements, health behaviors

Introduction

The family environment is one of the main factors influencing health behaviors. The family is the first place where children acquire necessary skills and knowledge on caring about their health. Parents are the first teachers for their children as, in their first period of life and development, they spend the most time with them. In this period, a strong emotional bond is created between parents and children which results in the children's desire to pattern themselves on the parents' behavior and identify themselves with them. Additionally, the children's desire to represent the parents views and beliefs is created. Parents provide their children with knowledge on preventive actions, promote healthy eating, physical activity, and give information on supplementing the diet with necessary nutrients which prevent deficiency symptoms. An important element of the parental education is not only providing the knowledge but also appropriate patterns created through their own pro-health behavior [1].

Currently it is possible to observe the occurrence of deficiencies of certain minerals such as magnesium in the diet of different age groups of our society [2]. This may be caused by various factors including an inappropriate diet low in minerals, excessive intake of stimulants such as coffee and difficulties in coping with stressful situations [3]. These factors cause a reduction of this element in the organism, frequently leading to insufficiencies. Magnesium deficiencies often concern students, which is an outcome of an irregular lifestyle and an improper diet. Research conducted by Harton et al shows that students' diets, especially those of female students are not caloric enough [4]. A similar interdependence was observed by Marzec et al in his studies where the students diet did not meet any of the recommended standards for nutrients and minerals [5]. An important cause of magnesium deficiency among students, especially in the period of midterm or end term exams, is an excessive consumption of coffee which causes magnesium loss [3,4]. Many of these young people are not able to cope with stressful situa-

tions, as well as they often over-react to stress, which also causes magnesium deficiency and is manifested by fatigue, general weakness and tremor [3,6]. Thus, in order to supplement the shortages of this element it is often necessary to supplement the diet with magnesium preparations [7]. Studies conducted by Jarosz in 2008 show that one in five Poles aged over 15, used diet supplementations [8].

Aim of the study

The assessment of the relationship between the family factor and pro-health behaviors concerning magnesium supplementation and the general knowledge on magnesium.

Material and Method

743 students of Lublin universities took part in the study. There were 513 students of the medical sciences, 149 of the exact sciences and 81 of the humanities. The study group consisted of 77.3 women (N=575) and 22.7 men (N=168). The age of the respondents ranged from 18 to 40. The largest group of respondents were students, aged 23-40 (37%). The studies on students were conducted individually. The authors met with great favor and interest among the respondents. To assess the health behaviors, an author made questionnaire was used. Questions included in the anonymous survey were both closed and opened. The questionnaire included demographic questions and questions concerning the respondents' behavior

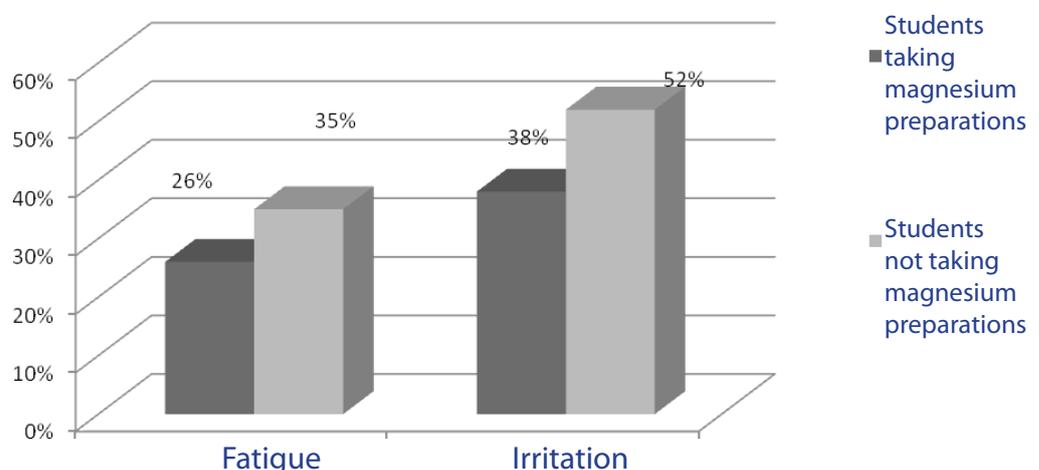
on the use of magnesium preparations by themselves and their families. The questions also concerned the students' knowledge on the natural sources of magnesium present in food products and the effects of its deficiency. The results were statistically analyzed using the Mann-Whitney U, Chi2 and the Kruskal-Wallis test. To assess the relationship between the period of magnesium intake and knowledge about it, the Spearman's rank correlation was used.

Results

As much as 42 % of the students supplemented their diet with magnesium preparations. It was noted that 52% of these students used advertised preparations, which may indicate an important factor which is decisive in choosing the magnesium namely advertising. Among those respondent who reported taking the magnesium, over 41% took it at least a month.

A statistically significant relationship between the student's magnesium preparations intake and their knowledge on magnesium deficiency was observed ($p < 0.05$). Students who took magnesium, more frequently enumerated irritation as one of the most common symptoms of magnesium deficiency compared to those who did not (38% and 26% respectively). A similar correlation ($p < 0.05$) was observed while indicating another symptom of magnesium deficiency by the respondents which is fatigue; here as much as 52% of the respondents taking magnesium preparations pointed to this symptom, in comparison to 35% of those who did not (Fig. 1).

Fig. 1. Respondents' knowledge on the symptoms of magnesium deficiency depending on taking preparations with magnesium



A similar relationship was observed between the period of magnesium intake within the study group and the knowledge on magnesium deficiency. Those who took magnesium preparations for a longer time had a better knowledge on deficiency symptoms ($p < 0.05$).

In the study, 56% of the respondents indicated that their family members also take magnesium preparations. A statistically significant relationship was noticed ($p < 0.05$) between the frequency of magnesium preparation intake within a population and within the family. Analysis shows that magnesium was taken more often by respondents (51.07%) in whose families magnesium was also taken. In families where magnesium was not taken, only 29.94% of the respondents took the magnesium.

A positive correlation between knowledge on magnesium intake and taking magnesium in the respondents families was observed. In families where the diet was supplemented with magnesium preparations, the respondents exhibited more knowledge on magnesium deficiency symptoms ($p < 0.05$) and on natural sources of magnesium in foods ($p < 0.05$).

Analyzing individual symptoms of magnesium deficiencies in the body, a significant statistical relationship between magnesium intake within the family and indicating by the respondents fatigue as one of the most frequent symptoms of magnesium deficiency was observed ($p < 0.05$). As much as 47% of the respondents from families which take the magnesium, pointed to this symptom and only 36% of respondents from families which do not (Fig. 2).

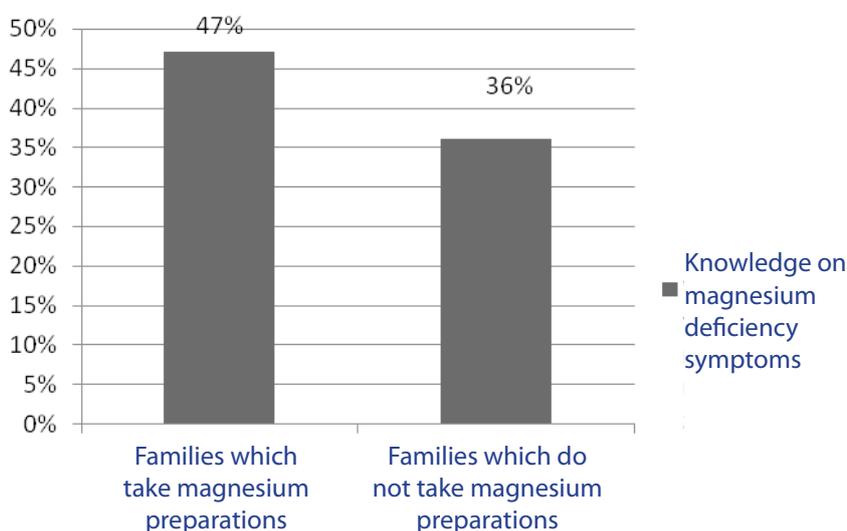


Fig. 2. Respondents' knowledge on the symptoms of magnesium deficiency which is fatigue, depending on taking magnesium preparations by the family

A similar correlation was observed in case of identifying natural sources of magnesium. In families where magnesium preparations were taken, students much more frequently indicated peanuts (59%, $p < 0.05$) and seeds (15%, $p < 0.05$) as natural sources of magnesium in comparison to respondents where magnesium was not taken by family members (49%, 9%). Magnesium intake by family members was analyzed in detail and a statistically significant relationship between the closest family members was observed. Respondents whose parents took magnesium, had better knowledge on symptoms of magnesium deficiency ($p < 0.05$) and on natural sources of magnesium ($p < 0.05$). In case where the siblings took magnesium, the respondents also had better knowledge on the symptoms of its deficiency ($p < 0.05$). Grandparents of respondents who took magnesium were also analyzed, however, there was no statistically significant differences concerning this group.

Discussion

Studies conducted by Aleksandrowicz et al. show that magnesium deficiency in Poland varies from 20-60% in all of the age groups; in majority diagnosed in children [9]. Improper diet, rich in excessive proteins, fatty acids and salt as well as consuming unhealthy snacks such as chips, fries and colored drinks, contribute to magnesium absorption disorders. These deficiencies may be caused by various factors including insufficient magnesium supplementation in the diet [3,10].

Taking magnesium preparations is a supplementation of magnesium deficiency occurring in the body [7].

Majority of the studied population uses magnesium preparations in complementing their diet. Similar results were obtained by Marzec, who in his studies, observed that 54% of the students of the Medical University and 35% of the students of the University of Life Sciences supplemented their diet with magnesium preparations [5]. Puścion et al indicated in their studies an essential effect of using magnesium preparations on the increase of magnesium level in the body [11].

In the light of the obtained results it can be stated that the awareness of the products reducing the level of magnesium in the blood is very high. In families where magnesium preparations were taken, especially by the closest family members such as parents or siblings, a higher knowledge on magnesium was observed.

A positive correlation was observed between magnesium intake among closest family members (parents, siblings) and the respondents' knowledge on the deficiency symptoms and natural sources of this element. Additionally, a positive correlation between the intake of magnesium within the family and the frequency of supplementing the diet with magnesium preparations among the studied population was observed.

The results of these studies indicate a significance of the family factor in acquiring proper pro-health behavior patterns concerning magnesium supplementation among the study group and the students' general knowledge on magnesium.

Conclusions

1. The family factor plays an important role in supplementing the diet in magnesium preparations among students.
2. The use of magnesium preparations among the closest family significantly affects the level of students' knowledge on the symptoms of magnesium deficiency.
3. Supplementing the diet in magnesium by family members is positively correlated with the level of knowledge about the natural sources of magnesium in foods.

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