

QUANTITATIVE ASSESMENT OF MENUS FROM NURSING HOME

OCENA ILOŚCIOWA JADŁOSPISÓW REALIZOWANYCH W DOMU POMOCY SPOŁECZNEJ

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SUMMARY

Background: A properly balanced diet in terms of quantity and quality of the products consumed should meet the needs of elderly people in terms of energy value and nutrition.

Aim of the study: The aim of the study was to perform a qualitative and quantitative assessment of ten-day menus used by nursing homes which varied according to season.

Material and methods: The study included 40 ten-day menus, prepared for the four seasons of nursing home residents. A quantitative assessment of the meals was carried out using the Diet 5 computer program and Microsoft Excel statistical analyse the data, which included the average, median and coefficient of variation.

Results: The average energy value for all the seasons showed no significant differences. The fat and dietary fibre content in the menus was suitable for the group, regardless of the season. The average carbohydrate content was in the suitable range only in summer. In contrast, the dietary protein requirement for the elderly was at acceptable levels in autumn alone.

Conclusions: The menus assessed did not show many errors, however special attention must be paid when planning the diet for the elderly.

KEYWORDS: elderly people, nutrition, nutrients, quantitative evaluation of menus

STRESZCZENIE

Wstęp: Odpowiednio zbilansowana pod względem ilości spożywanych produktów dieta zapewnia pokrycie zapotrzebowania osób w wieku podeszłym na energię i składniki odżywcze.

Cel pracy: Celem pracy była ocena ilościowa jadłospisów dekadowych zrealizowanych w Domu Pomocy Społecznej, w zależności od pory roku.

Materiał i metody: Badaniem objęto 40 dekadowych jadłospisów, sporządzonych w ciągu czterech pór roku dla pensjonariuszy DPS. Przeprowadzono ocenę ilościową racji pokarmowych przy użyciu programu komputerowego Dieta 5 i wyliczono dane statystyczne, podając średnią, medianę oraz współczynnik zmienności, przy zastosowaniu programu Microsoft Excel.

Wyniki: Średnia wartość energetyczna we wszystkich sezonach nie wykazała znaczących różnic. Również ilość tłuszczów i błonnika w badanych jadłospisach pokrywała zapotrzebowanie dla grupy, niezależnie od pory roku. Średnia

zawartość węglowodanów mieściła się w zakresie wyliczonym dla tego składnika wyłącznie latem. Natomiast białko to składnik, którego zapotrzebowanie dla osób w wieku podeszłym było regulowane prawidłowo tylko jesienią.

Wnioski: W ocenianych jadłospisach nie wykazano licznych błędów, jednak należy zwracać szczególną uwagę przy planowaniu odżywiania osób w wieku podeszłym.

SŁOWA KLUCZOWE: osoby w wieku podeszłym, odżywianie, składniki pokarmowe, ocena ilościowa jadłospisów

BACKGROUND

Poland is one of the countries in the world where the prolonged average life span is observed. The increasing the number of elderly people in demographic forecasts amplifies the interest in their nutrition and quality of life. More and more attention is paid to pro-health behaviours, which affect the prolongation of human life and limit the development of age-related diseases [1].

The heterogeneity of this group restricts the development of universal dietary recommendations. Difficulties are being encountered in the creation of one optimal diet model that would be acceptable by the elderly and at the same time balanced, both economically and customary, while meeting the recommendations for rational nutrition of the elderly.

The knowledge that, with age, the demand for nutrients and also the way they are used by the body is changing, is essential for seniors [3], because more often than not, the diet of the elderly is incorrect. It should also be noted that the poor eating habits are usually fixed, therefore any change can be difficult. That is why, every modification should be introduced gradually. This is especially important in hospital settings, sanatoria, or social welfare homes, where the patient is prescribed a diet. In many cases, its composition, or the taste itself is not accepted by the elderly [2].

Lack of varied meals and a monotonous diet is a common mistake made by the elderly. Food choices are also limited by medication taken and numerous diseases. Seniors lead a more settled life than younger people, because they have no professional obligations. However, the frequency of meals is not adequate to the metabolic potential of the body. They often eat 3 meals a day, so snacking is another problem. Their diet usually consists of grain products, less often fruits, vegetables, milk and dairy products. This leads to an increase in its energy value. Moreover, the frequency of snacking increases in older age groups and often replaces basic meals, which negatively affects the quality of the diet [4].

Another common problem in geriatric populations is the reduction in the consumed amount of foods and fluid. These are the main causes of weight loss. In consequence, poorly balanced meals and low nutritional value lead to excessive intake of fats, cholesterol, phosphorus and sodium. Elderly people are also more vulnerable to deficiencies of vitamins and minerals. This is a serious health threat, because these deficiencies can aggravate existing conditions and increase the risk of nutritionally-dependent diseases [4].

AIM OF THE STUDY

The aim of the study was to evaluate quantitative and qualitative ten-day menus realized in the nursing home, depending on the season.

MATERIAL AND METHODS

The menus, which were prepared in the nursing home in Lower Silesia, were subjected to assessment. The meals were prepared in a canteen located in the facility. Due to the use of the ten-days menus, for each season of the year, 10 randomly chosen ones were taken into account, that is, spring, summer, autumn and winter.

In order to analyse 40 daily meals prepared for the residents of the nursing home and meals, which consisted of 3 basic meals, the Diet 5 program was used. Energy value, the content of nutrient and fibre were taken into account. Considering the physical activity of the elderly (1.4), using the norms developed by the Food and Nutrition Institute [5], the average norms of the analysed nutrients were calculated for people over 60 years of age. For this purpose a formula was used, where K – the norm for women, M – the norm for men. The results were compared with the calculated mean values of the norm for the elderly at the level of average consumption (EAR) for the energy value and nutrient content, and an adequate intake (AI) of the dietary fibre. The results were statistically analysed giving the mean value (X), the median and coefficient of variation (CV). The calculations were performed using Microsoft Excel.

RESULTS

Tab. 1 shows the energy value and nutrient content of the four-season diets. The average energy value in all seasons showed no significant differences. It was the highest in the winter (1970 kcal), which covered 106% of the standard consumption, and the lowest in the autumn (1941 kcal), providing 105% of the daily energy demand.

Also the amount of fat in the menus studied covered the demand for the group, regardless of the season. The lowest intake of this component was shown in the spring (55 g), which covered 95% of the standard, whereas in the winter the fat content in the diet increased to 61 g, providing 106% of daily intake.

Dietary fibre was another component, whose amount in the rations in all the seasons, covered the daily requirements of the study group and was 19 g on average.

Table 1. Energy value and nutrient content in the studied menus, depending on the season

Season	Assessment parameters	Analyzed nutrient				
		Energy	Protein	Fats	Carbohydrates	Fibre
Spring	X	1960 kcal	87 g	55 g	296 g	19 g
	Median	1973 kcal	84 g	50 g	289 g	19 g
	CV	6%	17%	23%	9%	21%
	% of the norm	106%	124%	95%	-	95%
Summer	X	1965 kcal	85 g	60 g	289 g	19 g
	Median	1969 kcal	84 g	59 g	295 g	19 g
	CV	5%	17%	17%	7%	14%
	% of the norm	106%	121%	103%	-	95%
Autumn	X	1941 kcal	74 g	56 g	303 g	20 g
	Median	1908 kcal	79 g	57 g	287 g	19 g
	CV	5%	19%	24%	10%	17%
	% of the norm	105%	106%	97%	-	100%
Winter	X	1970 kcal	80 g	61 g	292 g	19 g
	Median	1948 kcal	79 g	60 g	294 g	20 g
	CV	4%	14%	22%	8%	20%
	% of the norm	106%	114%	105%	-	95%

X - mean, CV - coefficient of variation

The mean of carbohydrate content was within the range calculated for this component only in the summer. Elevated consumption was found in the remaining three seasons, with the highest in the autumn (303 g), accounting for 115% of the daily intake.

Protein is a component, whose demand for the elderly was suitable only in the autumn. In other seasons, an excessive amount of this component was observed in the menus studied. In the spring it was the most (87 g), which constituted 124% of daily demand for the study group.

DISCUSSION

Our results have shown that the energy demand has been achieved in all evaluated menus. Similar results were obtained by Malczyk et al. [6] in studies evaluating the nutritional status of the people aged 60 and over, or Całyniuk et al. [7] in the analysis of the menus conducted in the selected nursing home and in Gacek [8] during an analysis done in one of the nursing homes in Cracow. In turn, in the assessment conducted by Stawarska et al. [9] in the Warsaw association and by Różańska et al. [1] in Tarnogóra and in WOBASZ's study [10], it was observed that the energy value of meals relative to the nutritional recommendations was lower. On the other hand, excessive energy supply was found in a study conducted by Grochowska-Niedowork et al. [11] with a 3-time repeated 24-hour interview on consumption of products and meals in nursing home in Silesia and by Leszczyńska et al. [12] in the prepared menus in the selected nursing home and therapeutic welfare units. The proper energy value of meals is very important, because the health risk for the elderly may be due

to insufficient energy supply, leading to malnutrition and obesity resulting from excessive calorie diet [13].

The basis of a properly balanced diet is adequate distribution of macro nutrients in the daily food intake. The own analysis of protein, fat, carbohydrates and dietary fibre in the diets showed irregularities in the menus. The protein intake by nursing house residents was within the normal limits only in autumn. Comparable results were obtained by other authors [7,9,11] in the conducted study on the evaluation of menus for the elderly. The amount of protein in the rest of the year in the menus studied was reported to be in excess. Similarly, excessive protein intake was reported by Malczyk et al. [6], in a study evaluating the diets of people aged 60 and over from Jodłowo and Nadziejów and Gacek [8] in the analysis of food rations conducted in Cracow in the nursing home and by Leszczyńska et al. [12] during the evaluation of menus in the selected nursing home and nursing and therapeutic welfare units. Although, it is believed that a small excess of this components is harmless to the body, it should be emphasized that prolonged consumption of too much protein may contribute to overloading of the kidneys and liver, which is a serious health risk for the elderly [14].

Fat is the primary source of energy in the diet. Our own research has shown that this component, regardless of the season, was within the upper limit of the norm. While other authors [6,7,10-12] reported an excess in its recommended intake in the analyses of the menus or diets of the elderly. It should be emphasized that the correct amount of this component is important, because its excess, in combination with limited physical activity of the elderly, may contribute to being overweight or obesity and to increased incidence of car-

diovascular disease [15]. In turn, the shortage of fats in the diet can lead to deficiency in fat-soluble vitamins; A, D, E and K [5].

In the case of average amount of carbohydrates in the menus assessed only in the summer the norm was realized at the correct level. The excess of carbohydrates in the diet leads to a positive energy balance, which is largely responsible for the prevalence of being overweight and obesity in the elderly [15]. Too much of this component was noted in the spring, winter and autumn. Similar results were obtained by Leszczyńska et al. [12] in the studies conducted in the selected nursing home and in the nursing and therapeutic welfare units Malczyk et al. [6], Całyniuk et al. [7], Stawarska et al. [9] and Grochowska-Niedworok [11] in their studies obtained different results, indicating an insufficient amount of carbohydrates in the diet. The proper supply of this component is essential for the proper functioning of the body, as one of the effects of too little carbohydrate supply in food rations can be ketosis associated with nutritional deficiencies [5].

Another important element of the senior's diet is fibre, which slows down the absorption of sugars and reduces the absorption of toxic substances. Moreover it accelerates intestinal peristalsis what has positive

effect on health of the elderly. Own analysis showed satisfactory coverage of standards for fibre evaluated in the menus in all seasons. Also the correct amounts of this components in the diet of the elderly were obtained by Całyniuk et al. [7], Gacek [8] and Leszczyńska et al. [12]. On the other hand, insufficient dietary supply of dietary fiber has been reported by other authors [1,6,10,11], where too little of this ingredient was found in the nutritional assessment of the elderly.

CONCLUSIONS

1. The energy value of the analysed menus was correct regardless of the season.
2. In the case of fats and dietary fibre, the amount of these constituents was within the limits of daily intake.
3. The share of energy derived from protein only in the autumn covered the daily demand. In contrast, in the spring, summer and winter it was too high.
4. The carbohydrate intake exceeded recommended amounts in the spring, winter and autumn. In turn, the summer supply of this nutrient in the diet was correct.

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