Journal of Aging Research & Clinical Practice©
Volume 1, Number 3, 2012

EFFECTS OF A NUTRITION COUSELING ON FUNCTIONAL CONSTIPATION IN THE BRAZILIAN ELDERLIES: A PILOT STUDY

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Abstract: *Objective:* The aim of this study is to assess the effects of the nutritional counseling for elderly with functional constipation. *Methods:* The intervention study with two groups (intervention, n=21; and control, n=19) was conducted at school-hospital service. The intervention group received individual counseling by training nutritionist. The data was: age; Body Mass Index; social class; complaints about the intestinal habit; food intake; physical. The Fisher and the Mann-Whitney tests and the MacNemar and the Wilcoxon Sign tests were used. *Results:* It was observed that members of the intervention group reduced the number of complaints and the number of laxatives. An increase on the intake of fibers and liquids without altering the intake of a specific food group was also verified. *Conclusion:* It should also be highlighted that besides being individualized, the educational intervention based on the counseling theoretical model can decrease the symptomatology of functional intestinal constipation in elderly patients.

Key words: Elderly, nutrition, counseling.

Introduction

The organic functions usually decay with time. This decay, however, shows a wide variability when the deterioration rhythm in different organic systems and different individuals is considered (1). In parallel, functional changes occur in the gastrointestinal tract and in the intestinal physiology, like the reduction in the colonic traffic, and, mainly, changes in the anal-rectal function that can lead to intestinal constipation (2).

Constipation is a common symptom and it is an important morbidity cause among adults and elderlies (3) and the prevalence vary mainly according to the location and diagnostic criterion used. In the countries of Europe and Oceania between 5% and 35% (4) but is more frequent in elderlies than in youngsters (1). The impact of constipation on quality of life is significant and comparable with other common chronic conditions and your treatment is substantial for number of patients (5). A series of age-related problems can contribute to the prevalence of constipation and fecal incontinence in elderly (3, 6), including changes in the food choice and decrease in the thirst perception (7, 8).

Constipation is a highly frequent problem in the elderly and it has many health and psychological implications (9, 10) and the treatment must be individualized (11). The progressively increasing number of the elderly in the general population and, consequently, the growing prevalence of this morbidity highlight the need for new specifically targeted intervention options.

The present study has the goal to assess the effects of a nutritional education intervention upon constipated elderlies.

Methods

The study was developed at the Geriatric Ambulatory in a General Hospital that belongs to a Public University located in the city of São Paulo, Brazil, after approval by the Institutional Research Ethics Committee. The inclusion criteria were: (a) age 60 years or more, (b) diagnosis of functional intestinal constipation confirmed by medical team of the Geriatric Ambulatory . Among the subjects initially interviewed (n=78), 40 participated in the research: 21 in the "control" group and 19 in the "intervention" group. The "intervention" group had seven meetings for the nutritional education intervention and the "control" group had seven interviews with the same questions.

The data collected in the interviews were: Age (in years); socioeconomic data (schooling of the head of the family and social class according to consumer goods)

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Received September 23, 2011
Accepted for publication September 27, 2012

analyzed according to the standards of Brazilian Association for Research and Market (12); physical activity (yes/no) Weight and Height to determine the Body Mass Index (BMI) (13) with the NSI classification (14). Data were collected about the weekly frequency and effort, tenesmus, and the presence of hard and dry feces in 25% of the defecations and the patients were asked if they had a pre-determined schedule to try to evacuate every day. The medications uses were collected with the medical prescription and with the patient.

Food intake was measured with the 24-hour dietary recall in homemade measurements included water and liquids (milk, coffee, juice and tea).

The sample size was 41, which is sufficient to detect standardized effect size using a two-tailed significance test with a power of 80% and an alpha level of 0.05. The initial descriptive analysis was conducted using the Fischer test and the Mann-Whitney test. The differences between the characteristics before and after were verified with the administration of the Wilcoxon Sign test and the changes that occurred with the MacNemar test. The level of significance for all the statistical tests was 5%.

Educational intervention

The nutritional education intervention meetings were held within a theoretical model based on counseling techniques. It´s an active process of changes where the client (patient) has the right and the responsibility to make its feeding choices. The educational process is liberating and awareness-raising. The educator (training nutritionist) was the facilitator of this process, which makes the patient able to identify more clearly where he/she is, where he/she wants to be, and what he/she needs to get there. Consequently, the educator will discuss with the patient its current habits and try to make it aware about possible changes (15, 16).

The meeting discussed 7 topics : fruits; legumes; liquids; leaf vegetables; non-leaf vegetables; grains (cereal/bread and pasta); and physical activity. Using the food pyramid, the nutritionist presented all the food groups and their importance before meeting topic; a recipe rich in fibers was offered, as a demonstration. Folders with the approached topics and the tried recipes were also distributed. The changes in the feeding behavior were discussed, emphasizing the goals of the new practices.

Results

There were no significant differences in baseline characteristics (social class, schooling, gender, physical activity, use of laxatives and complaints) except in age factor (Table 1).

Table 1
Baseline characteristics of the participants

Characteristics	Control		Intervention	
	n (n=21)	Frequency %	n (n=19)	Frequency %
Age Group				
60 – 79	18	85,7	08	42,1 [a]
80 e +	03	14,3	11	57,9[a]
Social Class				
B	02	09,5	07	36,8
C	13	61,9	07	36,8
D	06	28,6	05	26,3
Schooling [b]				
Level I	17	81,0	15	84,2
Level II	04	19,0	04	15,8
Gender				
Male	03	14,3	03	15,8
Female	18	85,7	16	84,2
Physical activity				
Practice	12,0	57,1	10,0	52,6
Don't practice	09,0	42,9	09,0	47,4
Use of laxative	08,0	38,1	07,0	36,8
medication Complaints				
Two or less (evacuations per week)	10,0	47,6	09,0	47,4
Hard and dry feces (in 25% of evacuations or more)	16,0	76,2	14,0	73,7
Tenesmus (in 25% of evacuations or more)	18,0	85,7	15,0	78,9
Effort (in 25% of evacuations or more)	20,0	95,2	18,0	94,7
Having the personal hygiene habit	06,0	28,6	05,0	26,3

(a) $p < 0,05$; (b) Level I= illiterate + incomplete elementary; Level II= complete elementary and high school + incomplete college

Table 2
Baseline outcome variables (age, Body Mass Index (BMI), quantity of medications ingested daily and food consumption)

Variable	Control		Intervention	
	Average (sd)	Min - Max	Average (sd)	Min – Max
Age	75,0 (4,1)	66,0 - 82,0	78,1 (6,3)	67,0 - 90,0 [a]
BMI (kg/m²)	27,8 (4,7)	19,0 - 37,0	25,4 (5,2)	17,4 - 36,1 [a]
Medications (total)	5,8 (2,6)	1,0 - 12,0	5,9 (2,0)	2,0 - 10,0
Energy (kcal)	1330,3 (571,1)	614,9 - 2769,0	1092,0 (461,7)	362,4 – 2514,9
Carbohydrates (g)	168,0 (67,9)	74,3 - 381,4	161,6 (65,3)	60,2 - 334,2
Proteins (g)	61,2 (34,8)	21,6 - 139,2	42,2 (21,6)	9,7 - 99,7
Lipids (g)	47,9 (26,1)	17,0 - 107,3	31,8 (16,3)	7,5 - 84,7 [a]
Food Fibers (g)	15,4 (11,9)	6,3 - 57,5	11,7 (05,5)	2,9 - 26,7
Liquids (mL)	1282,7 (676,7)	480,0 - 3026,0	1090,0 (598,9)	300,0 - 2270,0
Number of meals	4,0 (0,9)	3,0 -5,0	4,3 (0,9)	3,0 - 6,0
Caloric distribution (%)				
Carbohydrates	53,3 (10,8)	32,8 - 79,2	58,1 (6,8)	40,0 - 71,8 [a]
Proteins	17,5 (04,3)	09,7 - 28,1	15,8 (4,5)	07,2 - 27,8
Lipids	31,2 (07,4)	18,1 - 47,3	26,7 (4,4)	18,7 - 34,1 [a]
Food groups				
Grains	2,1 (1,1)	0,1 - 03,7	2,6 (1,4)	0,8 - 6,0
Dairy products	1,2 (0,9)	0,0 - 03,3	1,0 (0,6)	0,2 - 2,6
Fruits	4,3 (4,7)	0,0 - 21,7	4,1 (2,8)	0,0 - 8,9
Vegetables	3,2 (4,2)	0,0 - 18,6	1,5 (1,1)	0,1 - 4,3
Legumes	1,4 (3,1)	0,0 - 14,7	0,8 (1,0)	0,0 - 3,8
Meat	1,1 (1,0)	0,0 - 04,2	0,7 (0,7)	0,0 - 2,4
Oil	2,6 (1,7)	0,5 - 07,9	1,6 (1,5)	0,2 - 6,6 [a]
Sugar	1,0 (1,1)	0,0 - 04,9	0,8 (0,7)	0,0 - 2,1

(a) $p < 0,05$

For the intervention group, mean age was 78.1 years. For control group is 75.0 years (Table 2). Despite the random choice, the average BMI for the control group was higher than intervention group. Otherwise, the control group presented an initial diet with a lower carbohydrate percentage and with a higher lipids percentage than the intervention group. The oil group presented significant differences (Table 2).

Comparing the initial with the after intervention, it was observed that the control group changes the lipids proportion and in the intervention group, nonetheless, these modifications were statistically significant in terms of the increase on the liquids ingestion and on the fibers consumption (Table 3). It can also be verified an increase on the use of medications, but it is important to highlight that regarding laxative medications, a significant decrease occurred in the average quantity used in intervention group.

Table 3
Characteristics distribution of individuals in the control and intervention groups at the initial (i) and final (f) moment of the follow-up

Variables	Control Average (sd)		Intervention Average (sd)	
	Initial	Final	Initial	Final
BMI (kg/m²)	27,6 (4,8)	27,4 (4,5)	25,4 (5,2)	25,4 (4,8)
Total medication use	5,8 (2,6)	6,8 (2,5)	5,9 (2,1)	7,3 (3,0) [a]
Laxative medication use	1,1 (0,7)	0,8 (0,7)	1,1 (0,7)	0,3 (0,5) [a]
Energy (kcal)	1330,3 (571,1)	1224,3 (409,3)	1092,1 (461,7)	1355,7 (485,1)
Carbohydrates (g)	168,0 (67,9)	171,9 (50,4)	161,6 (65,3)	178,5 (71,7)
Fibers (g)	15,4 (11,9)	13,7 (07,5)	11,7 (05,5)	18,9 (14,0)
Lipids (g)	47,9 (26,1)	36,0 (18,1)	31,8 (16,3)	42,5 (17,9)
Proteins (g)	61,2 (34,8)	53,0 (27,3)	42,2 (21,6)	60,9 (30,3) [a]
Caloric contribution (%)				
Carbohydrates	53,3 (10,8)	57,8 (11,2)	52,5 (10,6)	58,1 (06,8)
Lipids	31,2 (7,4)	25,5 (6,5) a	26,7 (4,5)	28,8 (7,7)
Proteins	17,5 (4,3)	16,9 (5,4)	17,6 (4,8)	15,8 (4,5)
Number of meals per day	4,0 (0,9)	4,5 (0,8)	4,3 (0,9)	4,5 (0,7)
Liquids (mL)	1282,7 (676,7)	1248,3 (600,5)	1090,5 (598,9)	1557,9 (517,0) [a]
Number of servings				
Grains	2,1 (1,1)	2,2 (0,9)	2,6 (1,4)	2,3 (1,1)
Dairy Products	1,2 (0,9)	1,0 (0,7)	1,0 (0,6)	1,1 (0,8)
Fruits	4,3 (4,7)	4,9 (4,1)	4,1 (2,8)	5,3 (3,8)
Vegetables	3,2 (4,2)	2,5 (2,2)	1,5 (1,2)	2,0 (1,0)
Legumes	1,4 (3,1)	0,9 (2,0)	0,9 (1,0)	2,1 (3,6)
Meat	1,1 (1,0)	1,6 (0,9)	0,7 (0,7)	1,1 (0,8)
Oil	2,6 (1,7)	1,4 (3,1)	1,6 (1,5)	2,4 (1,8)

(a) $p < 0,05$

The initial and final situations in terms of the complaints that allowed the functional intestinal constipation diagnostic are presented in Table 4. There was an improvement in the symptomatology among the intervention group individuals.

Discussion

This paper demonstrates that the nutritional education can decrease the symptomatology of functional intestinal constipation in elderly patients. The intervention group members showed a decrease in the number of complaints and also an increase on fibers and liquids consumption.

Table 4
Final characteristics of the intestinal habit and physical activity practice in the control and intervention groups compared with the initial situation

Complaints	Control		Intervention	
	Improved	Worsened	Improved	Worsened
Two or less (evacuations per week)	7	1	8	0 [a]
Hard and dry feces (in 25% evacuations or more)	7	1	14	0 [a]
Tenesmus (in 25% evacuations or more)	8	2	15	0 [a]
Effort (in 25% evacuations or more)	9	0 a	18	0 [a]
Having the Personal Hygiene habit	3	0	2	3 [a]
Physical activity practice	3	1	5	0

(a) $p < 0,05$

Furthermore, many authors have already observed that educational interventions for the consumption increase of food fibers and liquids have proved to be very beneficial for the decrease of intestinal constipation complaints in elderlies (7, 8).

A meta-analysis of 20 studies has shown that insoluble fibers increase the feces weight and decrease the intestinal traffic time in elderlies. The diet rich in fibers and liquids is always considered as the first treatment option for these individuals (7).

The intervention group increased the fibers and there was no significant change in consumption of specific food groups. This result is related with the fact that food fibers are present in a wide range of foods group (9). For that reason is important to improvement the diet in general and not only a specific food or meal (17, 18). Otherwise, the ingestion of food fibers below the recommended for the intestinal constipation treatment, from 20 to 50 g/day (3), was showing the importance of changing on diet quality.

Like in this study, BAKER and WARDLE (2002) (19) call attention to the fact that the educational intervention for adults and elderlies, when individualized, directed to food behavior changes and made in a short time period for the increase on fruits and vegetables consumption is effective.

Many authors (20, 21) have been showing the importance of discussing theoretical and methodological approaches in the nutritional education studies. The choice for Counseling came from the advantages that it can offer when compared with other individual attention models. Specially, the fact that the search for solutions for food problems allow the integration of experiences lived by the patient with the ones experimented by the nutritionist (22).

The worldwide population, mainly in the developing countries, has been augmenting the number of people

major 60 years with consequent amplification of health problems. Some of these problems can be prevents with healthy lifestyle changes, including food habits. However, it is fundamental define and choose theories e models that support these strategies. This paper study population with low income at one of major public hospital of Latin America by a nutritional counseling pilot and gives a methodological alternative to Public Health Education on Services, mainly for emergent countries that are in accelerated demographic transition.

The intervention efficiency could be different with a public that has more autonomy to choose the health service. The results of this study show the importance of the educational intervention, but some limitations must be presented for future research on the subject. The first one is that the participants of this study were users of a free public service. The second limitation refers to the long-term impact, which was not determined. The food practices tend to return to the initial situation 6 months after the intervention, when there is no follow-up support (23). Therefore, elderlies with functional intestinal obstipation should need a periodic follow-up to keep the healthy food practices. Studies must be undertaken to find strategies and theoretical models for the maintenance of the analyzed behavior.

Acknowledgment: This study was supported by a grant from the FAPESP Fundação de Amparo à Pesquisa do Estado de São Paulo.

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