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Medical science

IMPACT OF INTENSIVE NUTRITIONAL COUNSELING ON APPETITE IN HEMODIALYSIS PATIENTS WITH CHRONIC LIVER DISEASE

KEY WORDS: anorexia, nutrition, hemodialysis.

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ABSTRACT

Diet plays an important role in patients with endstage renal disease. Anorexia, the most frequent complication of uremic syndrome, that promote poor nutritional status obligate us to understand the applicable nutritional principles and the available methods for the improvement of long-term effect of nutrition in the presence of other comorbid conditions. The current study was designed to assess the prevalence of anorexia using currently available appetite assessment tools (Appetite and Diet Assessment Tool and Visual Analog Scale) and to investigate the impact of personalized nutritional counseling (PNC) on the appetite of patients on hemodialysis with low serum albumin which associate/or are free of chronic liver disease (CLD) during 6 months of follow-up. Results showed that there was significant increase ($p < 0.001$) in appetite as compared to baseline data in the groups that received individualized diets and intensive nutritional counseling, despite the presence of CLD.

Introduction

Anorexia, defined as the loss of the desire to eat, is relatively common in hemodialysis (HD) patients, affects quality of life, and is associated with an increased risk of morbidity and mortality^{1,2}. Anorexia reduces oral energy and protein intakes, thus contributing to the development of malnutrition and cachexia³. Patients with chronic renal failure undergoing renal replacement therapy by hemodialysis which associate liver disease, have an increased protein demand, so disease states of either the liver and/or the kidney invariably requires a careful, intensive and personalized nutritional counseling. Considering the clinical relevance of anorexia, several tools have been proposed for screening in general population, where questionnaires like Appetite and Diet Assessment tool (ADAT) and visual analog scale (VAS) are most commonly used⁴. The treatment of anorexia in chronic HD patients is based on a therapeutic strategy which includes optimal dialysis dose, support of food intake (through nutritional counseling and oral nutritional supplements), counteractive action to anorexic agents (inflammatory cytokines and low levels of branched chain amino acids)⁵. Dietary advice in HD patients is recommended by the European Best Practice Guidelines on Nutrition as well as by the Kidney Disease Outcomes Quality Initiative, through a nutritional care plan and individualized dietary counseling, which promotes an accurate selection of food options^{6,7}.

The aims of the present project were: (1) to assess the prevalence of anorexia using currently available appetite assessment tools (ADAT and VAS) in a population of patients receiving HD treatment which associate/or not CLD; (2) to prospectively evaluate the effects of PNC on the appetite of hypoalbuminemic HD patients with or without CLD during 6 months of follow-up.

Material and methods

This was a six months longitudinal intervention study that comprised 162 hemodynamic stable patients on HD treatment for at least 3 months recruited from B Braun Avitum Hemodilysis Unit, Botosani, Romania, between september 2015-march 2016. Study group were selected from 270 HD patients according to the following exclusion criteria: age below 18 years, hospitalization or acute illness in the preceding 3 months, psychiatric disorders (like mental retard or dementia). Participants gave informed consent before enrolling in the study. The study was approved by the ethical committee. All patients received a four hours/session,

three times/week. Patients were divided into 4 groups depending on the level of serum albumin (SA) and the presence or absence of CLD (characteristics of the study sample are summarized in table 1).

Table 1. Characteristics of the study sample

Group I	62 HD patients with serum albumin < 4 g/dl without CLD
Group II (control group for the first one)	39 HD patients with serum albumin > 4 g/dl without CLD
Group III	43 HD patients patients with serum albumin < 4 g/dl with CLD
Group IV (control group for the third one)	18 HD patients with serum albumin >4 g/dl with CLD

The presence of anorexia and its degree was evaluated using the first 3 questions of the Appetite and Diet Assessment Tool (ADAT) questionnaire, which evaluate the appetite status during the past week as well as Visual Analog Scale. Responses to the first question, During the last week, how would you rate your appetite, adhered to a five-point Likert scale: (1) very good, (2) good, (3) fair, (4) poor, and (5) very poor. The second and third questions ask whether there had been a change in appetite in the last week and, if so, whether had appetite increased, remained the same, or decreased⁸ and also assess the appetite in generally. Visual Analog Scale (VAS) consisting of a line of 100 mm, the extremes anchored to "no hunger" (0 mm) and "hunger" (100 mm), lack of fullness (0mm) and fullness (100mm), no desire to eat (0 mm) and strong desire to eat (100mm), was also administered (i.e Over the past week, in general how hungry have you been feeling? R: 0=not at all and 100=extremely). Patients were asked to place a line on the VAS that corresponded to their current appetite. This tool allows a quantitative "measure" of appetite, but there is no defined cutoff value on the VAS for diagnosing anorexia⁹. Both tools were determined at baseline, followed by their reevaluation after six months. Dietary calorie and protein intake was assessed by patient's diet history with the help of 72 hrs recall method. During 1 to 6 months, groups I and III had received intensive nutritional counselling and personalized diets. Groups II and IV were the control groups. Whenever considered necessary, written summarized advice with specific food alternatives was also

provided at the end of the session, and verbal counseling was reinforced.

Results

Table 2. Prevalence at baseline regarding ADAT between hypoalbuminemic and control groups

ADAT	n	During the last week, how would you rate your appetite?					There had been a change in appetite in the last week?			How would you rate your appetite in general?				
		very poor %	poor %	fair %	good %	very good %	no		Yes %		allways low %	often low %	rarely low %	good %
							%	increased	decreased					
group I	62	8,1	25,6	45,2	19,4	1,6	62,9	1,6	35,5	9,7	30,6	51,6	8,1	
group II	39	0,0	5,1	7,7	61,5	25,6	46,2	35,9	17,9	0,0	5,1	30,8	64,1	
p		0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	
group III	43	2,3	20,9	46,5	18,6	11,6	62,7	14,0	23,3	2,3	32,6	44,2	20,9	
group IV	18	0,0	0,0	16,7	61,1	22,2	33,3	44,4	22,2	0,0	0,0	38,9	61,1	
p		0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	0,001	

Table 3. Comparative of prevalence population using ADAT questionnaire between baseline and after six months of PNC

ADAT		During the last week, how would you rate your appetite?					There had been a change in appetite in the last week?			How would you rate your appetite in general?				
		very poor %	poor %	fair %	good %	very good %	no		Yes %		allways low %	often low %	rarely low %	good %
							%	increased	decreased					
Group I	T0	8,1	25,6	45,2	19,4	1,6	62,9	1,6	35,5	9,7	30,6	51,6	8,1	
	T6	1,6	9,7	33,9	32,3	22,6	62,9	29,0	8,1	3,2	11,3	37,1	48,4	
	P	0,001					0,001			0,001				
Group II	T0	0,0	5,1	7,7	61,5	25,6	46,2	35,9	17,9	0,0	5,1	30,8	64,1	
	T6	0,0	2,6	20,5	59,0	17,9	79,5	12,8	7,7	0,0	7,7	30,8	61,5	
	P	0,065					0,050			0,957				
Group III	T0	2,3	20,9	46,5	18,6	11,6	62,7	14,0	23,3	2,3	32,6	44,2	20,9	
	T6	0,0	2,3	27,9	50,0	22,2	62,8	32,6	4,7	0,0	7,0	44,2	48,8	
	P	0,001	0,046	0,171										
Group IV	T0	0,0	0,0	16,7	61,1	22,2	33,3	44,4	22,2	0,0	0,0	38,9	61,1	
	T6	0,0	0,0	27,8	50,0	22,2	66,7	16,7	16,7	0,0	5,6	66,7	27,8	
	P	0,156					0,026			0,547				

Table 4. Comparative baseline mean values of VAS between hypoalbuminemic and control groups

Visual analog scale	Group I (n=62)	Group II (n=39)	p	Group III (n=43)	Group IV (n=18)	p
	Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD	
Hunger	48,40±12,20	67,18±12,54	0,001	53,35±13,41	66,33±10,09	0,001
Fulness	55,32±11,42	66,69±11,40	0,001	60,65±13,52	66,11±8,61	0,001
Desire to eat	52,53±14,49	70,03±11,16	0,001	56,47±13,59	70,06±10,72	0,001

Table 5. Comparative VAS data between baseline and after six months of PNC

VAS	Group I (62)			Group II (39)			Group III (43)			Group IV (18)		
	T0	T6	p	T0	T6	p	T0	T6	p	T0	T6	p
Hunger	48,40	62,50	0,001	67,18	68,49	0,573	53,35	64,23	0,001	66,33	64,50	0,280
Fulness	55,32	65,35	0,001	66,69	69,08	0,245	60,65	67,86	0,002	66,11	63,78	0,118
Desire to eat	52,53	63,94	0,001	70,03	69,54	0,805	56,47	69,09	0,001	70,06	66,83	0,099

Discussions

The prevalence of anorexia in the HD population of Romania is for the first time determined and reaches a relatively high level in our country. This event cannot be neglected because it must be taken into account that low appetite and decrease of the desire to eat is influenced not only by the efficiency of the hemodialysis session, but also by quality of life, financial support, educational level, religious orientation, environment factors and the family support. In a previous study conducted in the same dialysis center which evaluated the quality of life of patients on chronic renal

replacement therapy, we found that economic factors like monthly food expenditure and family support varied in an expected direction showing poverty levels and material disadvantage for this population. Almost all our study patients have low monthly retirement income and healthcare allowance, characterizing a population with low socio-economic status. Dietary counseling to correct reduced or unhealthy nutrient intake, performed by a nutritionist has been shown to be useful. Akpele and Bailey have recently demonstrated in stable HD patients with inadequate dietary intake that the rate of change in serum albumin

level was significantly greater among patients randomized to receive intensive nutritional counseling than among those who received oral supplements.

Statistically significant comparative data at baseline for the whole study sample were summarized in table 2 and table 4. Regarding the first question of ADAT questionnaire, 32.7% from group I and 23.1% from group III exhibited anorexia in the past week (assessed by responding 'very poor' and 'poor'), recording a significant statistical difference compared to control groups II and IV ($p=0.001$). Furthermore, 35.5% of the subject from group I and 23.3% from group III reported a decrease in appetite in the last week. On the other hand in control groups were found a high prevalence in population of increase in appetite during the week before (35,9%, respectively 44,4%). The last question showed a strong statistical difference between hypoalbuminemic groups and control groups in all 4 answers. Data baseline for VAS hunger were significantly lower in the groups meeting serum albumin below 4 g/dl than the control groups. Similar trend was recorded by VAS fullness and VAS desire to eat. After six months of PNC in population with albumin <4g/dl, both tools have registered significant statistical differences compared to baseline (table 3 and 5).

Conclusions

The data presented suggest that ADAT and VAS are practical tools used to evaluate appetite and dietary habits, and also to assess the changes of dietary habits and improving appetite, after intensive nutritional counseling through the support of educational material created specifically for these patients. We underline the fact that after PNC the hypoalbuminemic population showed a significant improvement in appetite and desire to eat, and also the control groups maintained a constant over the prevalence on both tools, suggesting that chronic liver disease is not an impediment in treating anorexia.

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