PREVALENCE OF DEPRESSIVE SYMPTOMS IN END STAGE KIDNEY DISEASE PATIENTS UNDER DIALYSIS AND ITS ASSOCIATION WITH SOCIODEMOGRAPHIC AND CLINICAL DATA

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Background and aims

Patients with end-stage renal disease (ESRD) under dialysis showed a higher prevalence of depression. Depression has been associated with low quality of life and low adherence to prescribed dialysis treatments, including drugs regimen, prescribed dialysis sessions, dietetic recommendations and restriction of fluid intake, and increasing morbidity and mortality compared to the general population. In this work, we aimed to evaluate the prevalence of depression in a group of late-life patients with ESRD under OL-HDF), based on the geriatric depression scale (GDS) score and its associated variables, in order to develop interventions to improve depression symptoms, quality of life, adherence to dialysis prescription treatments and to reduce morbidity and mortality rates and health-care costs.

Material and methods

An observational cross-sectional study that included 114 patients under OL-HDF was conducted. Depression status was evaluated using the geriatric depression scale (GDS). Social support was also evaluated, as well as sociodemographic, comorbidities and haematological data, iron status, dialysis adequacy, nutritional and inflammatory markers.

Results

Our results showed that 43% (n=49) of our dialysis patients showed a GDS score lower than 5, 28.1% (n=32) showed a GDS score between 5 and 8, and 28.9% (n=33) showed a score of 9 or more. When the three groups of patients were compared, we found significant differences in age, creatinine, substitution fluid volume, relative fat, fat tissue index (FTI), lean tissue index (LTI), lean tissue mass (LTM) and social support scores (Table 1). Significant positive correlation was found between the GDS score and KTv, FTI and relative fat; and a negative correlation was found with social support score, creatinine, LTM and LTI (Fig 1).

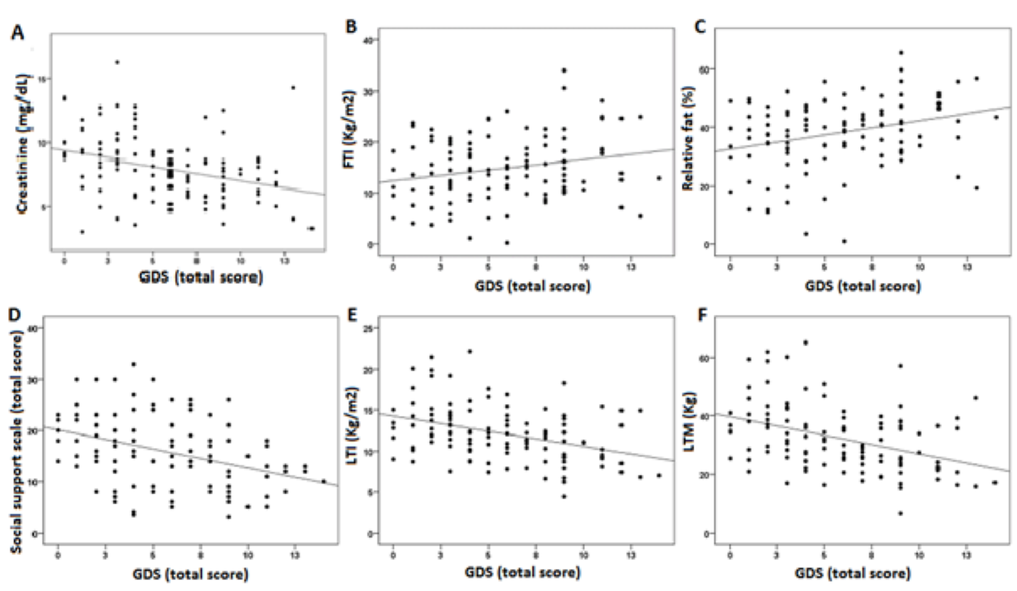

Fig. 1 - Significant positive correlation was found between GDS score and creatinine (A), FTI (B) and relative fat (C) and significant negative correlation was found with social support score (D), LTI (E) and LTM (F).

Table 1: Comparison of studied variables between the three groups of ESRD patients, non-depression (GDS score ≤5), suggestive of depression (GDS score between 6 and 8) and depression (GDS score >8)

	Geriatric depression scale score less than or equal to 4 (n=49)	Geriatric depression scale between 5 and 8 (n=32)	Geriatric depression scale greater than or equal to 9 (n=33)	P value
Sociodemographic data				
Age, years	64.6 ± 13.2	73.3 ± 10.4 a)	65.1 ± 15.8 b)	0.011
Gender, % male	67.3	40.6	36.4	0.090
Dialysis markers				
URR, %	82.2 ± 5.8	81.8 ± 5.8	82.4 ± 6.6	0.910
KTv	1.9 ± 0.3	2.0 ± 0.4	2.0 ± 0.5	0.129
Creatinine, mg/dL	9.1 ± 2.7	7.5 ± 1.7 a)	7.1 ± 2.3 a)	<0.001
Substitution fluid volume, L	25.0 ± 8.0	21.0 ± 7.0	20.0 ± 7.0 a)	0.009
Biochemical data				
Potassium, mmol/L	5.1 ± 0.6	4.9 ± 0.6	4.8 ± 0.8	0.154
Sodium, mmol/L	137.6 ± 3.3	137.7 ± 2.7	137.2 ± 2.9	0.797
Phosphorus, mmol/L	4.3 ±0.8	4.2 ± 1.4	4.0 ± 0.8	0.529
Calcium, mg/dL	8.9 ± 0.6	8.6 ± 1.7	8.8 ± 0.7	0.296
Calcium phosphorus product	38.2 ± 8.4	36.7 ± 11.9	35.4 ± 9.1	0.437
Lipid profile				
Total cholesterol, mg/dL	156.5 ± 46.7	155.9 ± 37.3	154.5 ± 44.4	0.981
Triglycerides, mg/dL	157.7 ± 82.5	119.6 ± 76.1	129.3 ±59.6	0.062
HDLc, mg/dL	42.7 ± 14.9	44.9 ± 13.2	44.5 ± 13.8	0.747
LDLc, mg/dL	82.2 ± 39.5	86.9 ± 32.9	84.2 ± 38.4	0.855
Hematological data				
Haemoglobin, g/dL	11.5 ± 2.0	11.1 ± 1.5	11.6 ± 1.3	0.491
Haematocrit, %	34.7 ± 6.5	33.9 ± 4.8	35.4 ± 4.4	0.562
Erythrocytes, x1012 /L	3.8 ± 0.8	3.7 ± 0.6	3.9 ± 0.5	0.418
RDW, %	13.7 ± 2.2	14.4 ± 1.7	14.1 ± 0.8	0.182
Platelets, $x10^9$/L	205.9 ± 76.0	214.7 ± 76.6	210.5 ± 56.0	0.859
White blood cells, $x10^9$/L	6.3 ± 1.8	6.9 ± 2.9	6.8 ± 2.4	0.379
Neutrophils, $x10^9$/L	3.9 ± 1.4	4.5 ± 2.0	4.7 ± 2.2	0.184
Lymphocytes, $x10^9$/L	1.7 ± 0.6	1.8 ± 1.5	1.6 ± 0.6	0.679
Neutrophil/Lymphocyte ratio	2.7 ± 1.8	3.3 ± 1.9	3.7 ± 3.1	0.160
Iron status				
Iron, mg/dL	71.8 ± 31.2	65.2 ± 24.7	63.5 ± 33.7	0.431
Transferrin, mg/dL	179.1 ± 30.6	167.3 ± 26.7	173.4 ± 27.8	0.200
Transferrin saturation, %	28.9 ± 12.9	28.5 ± 13.7	26.5 ± 15.5	0.736
Ferritin, ng/mL	435.3 ± 168.9	549.1 ± 230.0	456.7 ± 264.5	0.067
Nutritional markers				
Total proteins, g/dL	6.9 ± 0.4	6.9 ± 0.4	6.7 ± 0.6	0.114
Albumin, g/dL	3.8 ± 0.6	3.6 ± 0.7	3.5 ± 0.7	0.351
BMI, Kg/m2	26.7 ± 6.9	27.2 ± 6.6	27.4 ± 7.2	0.877
nPCR, g/kg/day	1.2 ± 0.2	1.1 ± 0.2	1.1 ± 0.2	0.271
Relative fat, %	34.7 ± 12.0	39.1 ± 11.0	43.1 ± 10.6 a)	0.006
FTI, kg/m2	13.5 ±5.9	15.4 ± 5.8	17.1 ± 6.8 a)	0.043
LTI, kg/m2	13.6 ±3.4	11.9 ± 2.6	10.4 ± 3.1 a)	<0.001
LTM, kg	37.6 ±11.6	30.6 ± 8.1 a)	27.4 ± 10.8 a)	<0.001
ATM, kg	36.5 ±15.2	39.1 ± 14.0	42.3 ± 13.5	0.214
OH, L	1.2 ± 1.3	1.2 ± 1.1	1.3 ± 1.5	0.871
Abbreviated Lubben Social Network Scale				
Abbreviated Lubben Social Network Scale, total score	17.7 ± 7.1	16.3 ± 6.9 a)	11.8 ±5.4 a)b)	0.001

a) P<0.05 *vs.* group I; b) P<0.05 *vs.* group II.

CVC: central venous catheter; URR: urea reduction ratio; PTHi: Parathyroid hormone; RDW: red cell distribution width; HDLc: high-density lipoprotein cholesterol; LDLc: low-density lipoprotein cholesterol; MCV: mean cell volume; MCH: mean cell haemoglobin; MCHC: mean cell haemoglobin concentration; BMI: body mass index; nPCR: normalized protein catabolic rate; FTI: fat tissue index; LTI: lean tissue index; LTM: lean tissue mass; ATM: adipose tissue mass; OH: pre-dialysis hydration state.

Conclusions

We found that 43% of patients presented a GDS score compatible with non-depression, (28.1%) suggestive of depression and (28.9%) depression. This prevalence is similar to that found in previous studies [3]. The results obtained in this study showed that high GDS scores were associated with low muscle mass, as suggested by the low levels of creatinine, LTI and LTM, and by the high relative fat and FTI. Indeed, depressed patients have less desire to eat and so their muscle mass decreases, which makes their creatinine levels lower too, as well as the LTI and LTM, and the high relative fat and FTI. Indeed, our work showed a relationship between the GSD score and bio-impedance measurements, but not with BMI. An association between substitution fluid volume and the GDS score was also found, suggesting that depression is associated with a decrease in dialysis adequacy.

Social support has been shown to be a significant variable associated with the GDS score. Moreover, it has been described that lower social support is associated with low survival and well-being. Our results showed that lower social support is an important variable associated with a high GDS score, which is associated with depression. For these reasons, in clinical practice the promotion or improvement of patients' support networks, namely through emotional means, tangible efforts, information sharing or advice giving is of extreme importance to improve depression status, and consequently the survival and quality of life of patients.

In conclusion, our results showed a high depression rate in patients with ESRD under dialysis, which is associated with low social support, decreased muscular mass and creatinine serum levels. It is important to consider social support as pivotal in non-pharmacological interventions to reduce depression, in order to enhance the adherence to medical plans, reduce health resource utilization and costs, and improve patient survival rates.

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