## INCREASING DEPRESSION, ANXIETY AND QUALITY OF LIFE IN HEMODIALYSIS.

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MITH

Intermediate

Pyelonephritis

■ SLE

Fig 1: Etiology of kidney disease

#### Background

Depression and anxiety prevalence is high in chronic kidney disease (CKD) patients, leading to poor quality of life (QOL). We evaluated the changes that occur with time, regarding depression, anxiety and QOL in HD patients and explored possible correlations with clinical-laboratory variables and Charlson Comorbidity Index (CCI).

### Materials and methods

We administered questionnaires regarding depression, anxiety and QOL in 52 patients from a single HD centre in Greece. Within a year we applied the same questionnaires to evaluate an increasing or decreasing tendency and find possible correlations. Each patient completed voluntary the following: 21 item Beck Depression Inventory (BDI), Geriatric Depression Scale (GDS), Hospital Anxiety and Depression Scale (HADS), Generalized Anxiety Disorder (GAD-7) and Short Form (SF36) health survey questionnaire. Additionally, we tried to find possible correlations with clinical-laboratory parameters.

The Beck Depression Inventory (BDI, BDI-II), is a 21-question multiple-choice self-report inventory, one of the most widely used instruments for measuring the severity of depression, from a psychodynamic perspective, instead of it being rooted in the patient's own thoughts. In its current version the questionnaire is composed of items relating to symptoms of depression such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight loss, and lack of interest in sex.

HADS is a self-assessment scale that was developed for detecting states of depression and anxiety in the setting of a hospital medical outpatient clinic. It is a self-rating instrument for anxiety and depression in patients with both somatic and mental problems. It is an instrument with good psychometric properties in terms of factor structure, sub-scale inter-correlation, homogeneity and internal consistency.

The GDS is a brief, 15-item questionnaire in which participants are asked to respond by answering yes or no in reference to how they felt over the past week. Of the 15 items, 10 indicated the presence of depression when answered positively, while the rest indicated depression when answered negatively. Scores of 0-4 are considered normal, 5-8 indicate mild depression; 9-11 indicate moderate depression; and 12-15 indicate severe depression .The GDS was found to have a 92% sensitivity and a 89% specificity when evaluated against diagnostic criteria.

Generalized Anxiety Disorder questionnaire (GAD-7) is a validated tool to identify potential patients suffering excessive anxiety symptoms, worrying, nervous feeling, irritability, concentrations difficulties, muscle stress, sleep disturbances and fatigue syndrome.

Short f	form (SF 36) parameters
Physical Component Summary (PCS)	Mental Compnent Summary (MCS)
Physical Function (PF)	Vitality (VT)
Role Physical (RP)	Social Function (SF)
Bodily pain (BP)	Role emotional (RE)
General Health (GH)	General Health (GH)

Total

70 12

16 (100%)

	Males	Females	
Age (mean sd)	68 12	73 10	
Diabetics (N %)	10 (62.5%)	6 (37.5%)	
	Table 1:	patients characteristics	

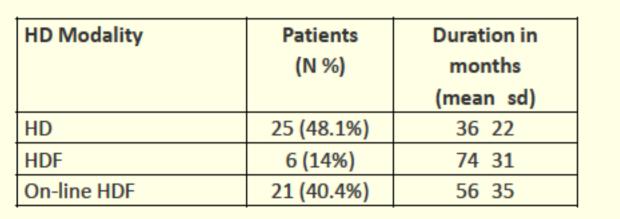


Table 2: Hemodialysis (HD) Modalities and Dialysis Vintage

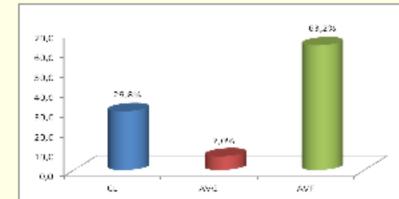


Fig 2: Type of vascular access

#### Results

- > The statistical analysis was made by using the pearson test (SPSS 16.0). Statistical significance was reported when p < 0.05.
- > The BDI test results were divided into three categories: low, moderate and significant.
- > HADS\_A and HADS\_D in: non case, borderline case and case. GAD- in mild, moderate and severe.
- > The geriatric scale results were as follows: normal, mild and severe.
- > Regarding SF-36, the lower the score the more the disability. The higher the score the less disability.
- > The total of our patients increased their scores, during the last year for the following tests HADS\_A and HADS\_D, but in the same time improved their BDI (63.46 % of the patients), GAD-7 and Geriatric scale score and in tandem they improved the following SF-36 QOL parameters: physical function (PF), role physical (RP), bodily pain (BP), vitality (VT), social function (SF), mental health (MH), physical component summary (PCS).

Resu	ılts of the different q	
	2012	2013
BDI		
Low	33 (63.5%)	35 (67.3%)
Moderate	14 (26.9%)	14 (26.9%)
Significant	5 (9.6%)	3 (5.8%)
	•	•
HADS_A		
Non –case	29 (55.8%)	33 (63.5%)
Borderline case	14 (26.9%)	6 (11.5%)
case	9 (17.3%)	13 (25%)
HADS_D		
Non – case	24 (46.2%)	18 (34.6%)
Borderline case	8 (15.4%)	9 (17.3%)
case	20 (38.4%)	25 (48.1%)
		·
GAD -7		
mild	35 (67.3%)	38 (73.1%)
moderate	9 (17.3%)	11 (21.2%)
severe	8 (15.4%)	3 (5.7%)
GERIATRIC		
Normal	41 (78.8%)	45 (86.5%)
mild	11 (21.2%)	7 (13.5%)
severe	0	0

	SCORE	(M.O.±stdev)		
	2012	2013	Correlation, r	P -value
BDI	15±9.7	13.9±9.3	0.559	0.000
HADS_A	7.0±5.3	7.1±5.0	0.518	0.000
HADS_D	8.7±5.1	9.4±4.7	0.496	0.000
GAD-7	7.2±5.2	3.6±4.4	- 0.227	Ns
GERIATRIC	6.0±3.9	5.4±3.6	0.542	0.000
SF-36	22 0112 4	25 6115 2	0.602	0.000
PF .	32.8±12,4	35.6±15,2	0.603	0.000
RP	34.6±10,7	37.2±11,6	0.525	0.000
ВР	43.4±13,6	47.0±15,4	0.331	0.017
GH	36.2±10,0	35.6±9,6	0.583	0.000
VT	45.9±13,0	46.1±13,7	0.540	0.000
SF	39.3±12,8	39.7±14,0	0.617	0.000
RE	33.4±12,8	33.0±13,1	0.627	0.000
МН	40.6±15,3	41.9±14,8	0.581	0.000
PCS	33.5±10,3	37.2±10,8	-0.095	ns
MCS	41.6±12,1	41.6±13,6	0.240	ns

In order to verify where the differences were mainly due, the sample was divided into 3 different groups: according to age (≤ 65 years young and elderly> 65 years), according to gender and whether they were diabetic or not. We report that in patients younger than 65 years, there was an increase in quality of life observed only at PF and RE. While elderly (> 65 years) patients reported worsening of their depression state, as there was an increase in their scores for BDI, HADS and Geriatric scale. Furthermore, quality of life improved for the parameters PF and RP.

	Age		Gender				
	≤65	>65	male	female	diabetics		Non-diabetics
N (%)	13 (25%)	39 (75%)	34 (65%)	18(35%)	15(29%)		37(71%)
BDI	r=0.526	r=0.600	r=0.651	r=0.450	r=0.492		r=0.582
2012 vs 2013	p=0.079	p =0.000	p =0.000	p =0.061	p =0.063		p =0.000
	ns			ns	ns		
HADS_A	r=0.526	r=0.557	r=0.502	r=0.479	r=0.588		r=0.458
2012vs 2013	p =0.636	p =0.000	p =0.003	p =0.044	p =0.021		p =0.004
	ns						
HADS_D	r=0.246	r=0.590	r =0.533	r=0.375	r=0.311		r =0.530
2012 vs 2013	p =0.441	p =0.000	p =0.001	p =0.125	p =0.258		p =0.001
	ns			ns	ns		
GAD-7	r=-0.230	r=0.416	r=0.062	r=0.429	r=0.488		r=0.163
2012 vs 2013	p=0.471	p=0.009	p =0.727	p =0.086	p =0.076		p =0.327
	ns		ns	ns	ns		ns
GERIATRIC	r=0.585	r=0.604	r=0.544	r=0.517	r=0.636		r=0.529
2012 vs 2013	p =0.046	p=0.000	p=0.001	p =0.017	p =0.011		p=0.001
Sf 36							
PF	r=0.760	r=0.470	r =0.503	r=0.715		r=0.560	r=0.603
2012 vs 2013	p=0.004	p=0.003	p =0.002	p=0.001		p =0.030	p =0.000
RP	r=0.227	r=0.526	r=0.560	r=0.454		r=0.750	r=0.463
20132vs 2013	p=0.477	p=0.001	p=0.001	p =0.059		p =0.001	p =0.003
	ns		1.	ns			
BP	r=0.261	r=0.323	r=0,230	r=0,476		r=0,493	r=0.256
2012 vs 2013	p=0.412	p=0,043	p=0,191	p =0,046		p =0,062	p=0.121
	ns		ns			ns	ns
GH	r=0.555	r=0,566	r=0,556	r=0,640		r=0,493	r=0.580
2012 vs 2013	p =0.061	p=0,000	p=0,001	p =0,004		p =0,062	p =0.000
	ns	,	, ,,,,,	,,,,,,,		ns	
VT	r=0.455	r =0,503	r=0,580	r=0,466		r=0.689	r=0.462
2012 vs 2013	p=0.137	p=0,001	p=0,000	p =0,051		p =0.005	p =0.004
	ns	p 0,001	F 2,000	ns		F 5.555	J 5.55 1
SF	r=0.178	r=0,680	r=0,589	r=0,617		r=0.850	r=0.509
2012 vs 2013	p=0.581	p =0,000	p =0,000	p =0.006		p =0.000	p =0.001
2012 13 2010	ns	p =0,000	p 0,000	p =0.000		p 0.000	p 0.001
RE	r=0.221	r=0,591	r=0,583	r=0.660		r=0.833	r=0.577
2012 vs 2013	p=0.490	p =0,000	p =0,000	p =0.003		p =0.000	p =0.000
2012 43 2013	ns	p =0,000	p =0,000	p =0.003		p =0.000	p =0.000
MH	r =0.629	r=0.577	r=0.657	r=0.405		r=0.778	r=0.407
2012 vs 2013	p =0.028	p =0,000	p =0,000	p =0.096		p=0.001	p =0.002
2012 V3 2013	p =0.028	p =0,000	p =0,000	ns		p =0.001	p -0.002
PCS	r=-0.077	r=0.040	r=-0.017	r =-0.202		r=-0.034	r=-0.136
				1		1	
2012 vs 2013	p =0.811	p =0.811	p =0.925	p =0.422		p =0.903	p =0.415
MOC	ns	ns	ns	ns		ns	ns
MCS	r=0.083	r=0.251	r=0.266	r=0.177		r=0.109	r=0.260
2012 vs 2013	p =0.797	p =0.123	p =0.128	p =0.482		p =0.700	p=0.116
	ns	ns	ns	ns		ns	ns

1. According to age ( ≤ 65 years young and elderly > 65 years)

We report that in patients younger than 65 years, there was an increase in the quality of life observed only at PF ( with statistically significant difference from 2012, p = 0.004) and RE ( a statistically significant difference from 2013, p = 0.028).

While elderly (> 65 years) patients report worsening of their depression state, as the scores of their questionnaires are as follows: increase in scores was seen in : BDI ( with p = 0.000), HADS\_A (p = 0.000), HADS\_D (p = 0.000), GERIATRIC (p = 0.000), PF (p = 0.003), RP (p = 0.001).

## 2. According to gender

For men, who constitute 65 % of our patients, there was an increase in their scores within the last year as follows: BDI (p = 0.000), HADS\_A (p = 0,003), HADS\_D (p = 0.001), GERIATRIC (p = 0.001), PF (p = 0.002), RP (p = 0.001), GH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), VT (p = 0.000), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001), MH 0.000).

better QOL parameter outcomes, especially in younger HD patients (<65 years old), women and diabetics.

While women report an increase in their scores comparing to last year, as follows: BDI (not statistically significant), HADS\_A (p = 0.044), HADS\_D (not statistically significant), PF (p = 0.001), BP (p = 0.046), GH (p = 0.004), SF (p = 0.006), RE (p = 0.003).

# 3. Whether they are diabetic or not

For diabetics who constitute 28.8 % of the patients, an increase within the scores, comparing to the previous year, are as follows: HADS\_D (not statistically significant), PF (p = 0.030), RP (p = 0.001), VT (p = 0.005), SF (p = 0.000), RE (p = 0.000), MH (p = 0.001). While non-diabetics observed an increase in their last year's scores on the following: HADS\_A (p = 0.004), HADS\_D (p = 0.001), PF (p = 0.000), RP (p = 0.003), GH (p = 0.000), VT (with p = 0.004), SF (p = 0.001), RE (p = 0.000), MH (p = 0.002).

### More detailed for each group:

1. Underneath are the scores divided according to their age young (≤ 65 years) and elderly (> 65 years)

scor	DE (M.O. +c+dow) for CCE you	are.					
SCORE (M.O.±stdev) for ≤65 years							
	2012	2013	P -value				
BDI	12.8±12.0	7.5±5.8	ns				
HADS_A	6.4±5.6	4.9±5.0	ns				
HADS_D	8.6±5.0	6.4±4.3	ns				
GAD-7	9.1±6.2	1.5±1.3	ns				
GERIATRIC	6.5±4.9	3.5±3.4	0,046				
SF-36		1.5.4140.0	2.004				
PF	41.2±11.2	45.4±13.3	0,004				
RP	41.0±13.5	43.7±12.7	ns				
BP	46.9±12.1	61.8±3.3	ns				
GH	39.8±8.8	40.2±9.4	ns				
VT	51.5±9.5	56.0±11.3	ns				
SF	42.9±9.5	49.1±11.6	ns				
RE	39.9±12.6	41.5±13.2	ns				
МН	42.8±12.3	49.2±10.4	0,028				
PCS	30.5±10.9	46.9±8.4	ns				
MCS	44.5±11.3	48.8±11.5	ns				

N =13	2012	2013		
BDI				
Low	10 (76.9%)	12 (92.3%)		
Moderate	2 (15.4%)	1 (7.7%)		
Significant	1 (7.7%)	0		
	•	•		
HADS_A				
Non –case	10 (76.9%)	10 (76.9%)		
Borderline case	0	1 (7.7%)		
case	3 (23.1%)	2 (15.4%)		
HADS_D				
Non – case	5 (38.5%)	7 (53.8%)		
Borderline case	3 (23.1%)	3 (23.1%)	3 (23.1%)	
case	5 (38.5%)	3 (23.1%)		
GAD -7				
Mild	7 (53.8%)	13 (100%)		
moderate	2 (7.7%)	0		
severe	5 (38.5%)	0		
GERIATRIC				
Normal	10 (76.9%)	13 (100%)		
mild	3 (23.1%)	0		
severe	0	0		

Test re	sults for patients >65 years	s old	
	2012	2013	P -value
BDI	15.7±8.9	16.0±9.3	0.000
HADS_A	7.2±5.3	7.8±4.9	0.000
HADS_D	8.7±5.2	10.4±4.4	0.000
GAD-7	6.5±4.5	4.4±4.8	0.009
GERIATRIC	5.8±3.6	6.0±3.5	0.000
SF-36			
PF	30.0±11.6	32,4±14.5	0.003
RP	32.3±8.8	35,0±10.7	0.001
3P	42.2±14.0	42,1±14.7	0.043
6H	35.0±10.1	34,1±9.4	0.000
π	44.1±13.6	42,9±12.9	0.001
F	38.1±13.6	36,5±13.4	0.000
RE	31.3±12.3	30,2±12.0	0.000
ИН	39.9±16.2	39,5±15.4	0.000
ecs	34.5±10.0	34,0±9.6	ns
MCS	40.6±12.3	39,0±13.4	ns

1	Test results for patients >	65 years old.
N =39	2012	2013
BDI		
Low	23 (59%)	23 (59%)
Moderate	13 (33.3%)	13 (33.3%)
Significant	3 (7,\.7%)	3 (7.7%)
	•	•
HADS_A		
Non –case	20(51.3%)	23 (59%)
Borderline case	13 (33.3%)	5 (12.8%)
case	6(15.4%)	11 (28.2%)
HADS_D		
Non – case	19 (48.7%)	11 (28.2%)
Borderline case	5 (12.8%)	6 (15.4%)
case	15 (38.5%)	22 (56.4%)
	•	•
GAD -7		
Minimal	28(71.8%)	35 (89.7%)
moderate	7(18%)	1 (2.6%)
severe	4(10.2%)	3 (7.7%)
		•
GERIATRIC		
Normal	31 (79.5%)	32(82.1%)
mild	8(20.5%)	7 (17.9%)
severe	0	0

### 2. Divided according to different sex

Test	results for masculine patie	nts	
	2012	2013	P -value
BDI	15.7±8.9	16.0±9.3	
HADS_A	7.2±5.3	7.8±4.9	0.003
HADS_D	8.7±5.2	10.4±4.4	0.001
GAD-7	6.5±4.5	4.4±4.8	Ns
GERIATRIC	5.8±3.6	6.0±3.5	0.001
PF	30.0±11.6	32.4±14.5	0.002
SF-36			
RP	32.3±8.8	35.0±10.7	0.001
ВР	42.2±14.0	42.1±14.7	Ns
GH	35.0±10.1	34.1±9.4	0.001
VT	44.1±13.6	42.9±12.9	0.000
SF	38.1±13.6	36.5±13.4	0.000
RE	31.3±12.3	30.2±12.0	0.000
MH	39.9±16.2	39.5±15.4	0.000
PCS	34.5±10.0	34.0±9.6	ns
MCS	40.6±12.3	39.0±13.4	ns

• •						т т			
SF		38.1±13.0	5	36.5±13.4	0.000	1 +	SF		32.4±12.4
RE		31.3±12.3	3	30.2±12.0	0.000	1	RE		30.1±11.5
МН		39.9±16.2	2	39.5±15.4	0.000	1	MH		36.3±15.7
PCS		34.5±10.0	)	34.0±9.6	ns	1	PCS		34.0±11.4
MCS		40.6±12.3	3	39.0±13.4	ns	1	MCS		41.4±9.6
						•			
Test re	sults for ma	asculine pa	atients				Te	st results for	feminine pa
N =34	2012		2013				N =18	2012	
BDI							BDI		
Low	22 (64.7%)		27 (79.49	%)			Low	11 (61.1%	)
Moderate	9 (26.5%)		6 (17.6%	)			Moderate	6 (33.3%)	
Significant	3(8.8%)		1 (3%)				Significant	1 (5.6%)	
								•	
HADS_A							HADS_A		
Non –case	21 (61.8%)	)	22 (64.79				Non –case	8 (44.4%)	
Borderline case	9 (26.5%)		6 (17.6%				Borderline case	5 (27.8%)	
case	4 (11.7%)		6 (17.6%	)			case	5 (27.8%)	
							Cusc	3 (27.070)	
HADS_D							HADS_D		
Non – case	17 (50%)		13 (38.29	%)			Non – case	7 (38.9%)	
Borderline case	6 (17.6%)		5 (14.7%				Borderline case	4 (22.2%)	
case	11 (32.4%)	)	16 (47.19				case	7 (38.9%)	
							GAD -7		
GAD -7							Minimal	4 (22.2%)	
Minimal	16 (47.1%)		25 (73.59				moderate	14 (77.8%	)
moderate	13 (38.2%)		9 (26.5%	)			severe	0	

Test results for	Test results for feminine patients							
	2012	2013	P -value					
BDI	15.8±9.1	18.2±10.0	Ns					
HADS_A	8.6±5.9	8.9±6.1	0.044					
HADS_D	9.9±5.4	10.8±4.3	Ns					
GAD-7	8.4±5.4	4.6±4.9	Ns					
GERIATRIC	6.1±4.3	5.5±3.2	0.017					
SF-36								
PF	26.4±10.4	30,1±13.9	0.001					
RP	30.4±7.3	36,2±12.2	Ns					
BP	34.3±10.6	44,3±17.1	0.046					
GH	34.5±12.1	32,2±8.6	0.004					
VT	42.1±14.6	43,9±15.1	Ns					
SF	32.4±12.4	36,0±15.0	0.006					
RE	30.1±11.5	33,1±13.5	0.003					
MH	36.3±15.7	38,8±14.8	Ns					
PCS	34.0±11.4	32,3±10.8	Ns					
MCS	41.4±9.6	40,1±13.6	Ns					

Test results for feminine patients		
N =18	2012	2013
BDI		
Low	11 (61.1%)	8 (44.4%)
Moderate	6 (33.3%)	7 (38.9%)
Significant	1 (5.6%)	3 (16.7%)
HADS_A		
Non –case	8 (44.4%)	11 (61.1%)
Borderline case	5 (27.8%)	0
case	5 (27.8%)	7 (38.9%)
HADS_D		
Non – case	7 (38.9%)	5 (27.8%)
Borderline case	4 (22.2%)	4 (22.2%)
case	7 (38.9%)	9 (50%)
GAD -7		
Minimal	4 (22.2%)	13 (72.2%)
moderate	14 (77.8%)	4 (22.2%)
severe	0	1 (5.6%)
GERIATRIC		
Normal	13 (72.2%)	16 (88.9%)
mild	5 (27.8%)	2 (11.1%)
severe	0	0
Sereic		

# 3. Diabetics versus non diabetics

5 (14.7%)

6 (17.6%)

severe

GERIATRIC

Test	results for diabetic patien	its	
	2012	2013	P -value
BDI	17.7±9.7	14.9±9.5	Ns
HADS_A	9.6±5.9	8.3±6.0	0.021
HADS_D	10.1±4.3	10.4±4.2	Ns
GAD-7	6.9±5.3	3.9±4.1	Ns
GERIATRIC	6.5±3.1	5.7±2.7	0.011
SF-36 PF	29.2±12.1	31.4±16.9	0.030
PF	29.2±12.1	31.4±16.9	0.030
RP	33.6±10.1	36.5±12.6	0.001
ВР	38.0±13.6	44.6±14.0	Ns
GH	34.7±10.3	33.6±8.2	Ns
VT	42.4±13.5	43.1±13.9	0.005
SF	33.6±13.1	35.4±12.5	0.000
RE	33.5±13.5	33.5±14.1	0.000
МН	38.3±15.4	37.4±18.4	0.001
PCS	31.7±8,1	34.6±10.8	Ns
MCS	37,1±11.3	38.9±15.1	Ns

29 (85.3%) 5 (14.7%)

MCS 37,1±11.3			
Test results for diabetic patients			
N=15 2012 2013			
BDI			
Low	7 (46.7%)	10 (66.7%)	
Moderate	6 (40%)	4 (26.7%)	
Significant	2 (13.3%)	1 (6.6%)	
HADS_A			
Non –case	5 (33.3%)	8 (53.4%)	
Borderline	5 (33.3%)	1 (6.6%)	
case	5(33.3%)	6 (40%)	
case			
HADS_D			
Non – case	7 (46.7%)	5 (33.3%)	
Borderline	2 (13.3%)	1 (6.6%)	
case	6(40%)	9 (60.1%)	
case			
	1		
GAD -7			
Minimal	7 (46.7%)	11 (73.3%)	
moderate	8 (53.3%)	4 (26.7%)	
severe	0	0	
GERIATRIC			
Normal	12 (80%)	14 (93.4%)	
mild	3 (20%)	1 (6.6%)	
severe	0	0	
	2012	2013	
Percentage of	13 (22.8%)	20 (35.1%)	
patients on			
psychiatric			

Low	7 (46.7%)	10 (66.7%)
Moderate	6 (40%)	4 (26.7%)
Significant	2 (13.3%)	1 (6.6%)
HADS_A		
Non –case	5 (33.3%)	8 (53.4%)
Borderline	5 (33.3%)	1 (6.6%)
case	5(33.3%)	6 (40%)
case		
HADS_D		
Non – case	7 (46.7%)	5 (33.3%)
Borderline	2 (13.3%)	1 (6.6%)
case	6(40%)	9 (60.1%)
case		
GAD -7		
Minimal	7 (46.7%)	11 (73.3%)
moderate	8 (53.3%)	4 (26.7%)
severe	0	0
GERIATRIC		
Normal	12 (80%)	14 (93.4%)
mild	3 (20%)	1 (6.6%)
severe	0	0
	2012	2012
_	2012	2013
Percentage of	13 (22.8%)	20 (35.1%)
patients on		
psychiatric		

mild	3 (20%)	1 (6.6%)
severe	0	0
	2012	2013
Percentage of patients on psychiatric drugs	13 (22.8%)	20 (35.1%)

Test results for non diabetic patients			
	2012	2013	P -value
BDI	13.8±9.5	13.3±9.3	0.000
HADS_A	5.9±4.7	6.4±4.6	0.004
HADS_D	8.1±5.2	8.9±4.8	0.001
GAD-7	7.1±5.3	3.4±4.5	Ns
GERIATRIC	5.7±4.2	5.2±4.0	0.001
SF-36			
PF	34.3±12.2	37.1±14.2	0.000
RP	34.9±10.9	37.5±11.3	0.003
BP	45.6±13.0	48.3±16.0	Ns
GH	37.1±10.0	36.3±10.0	0.000
VT	47.5±12.6	47.4±13.4	0.004
SF	41.7±11.9	41.5±14.2	0.001
RE	33.7±12.7	32.5±12.9	0.000
МН	42.1±15.4	44.3±13.1	0.002
PCS	34.1±10.9	38.2±10.6	Ns
MCS	43.3±11.9	42.7±12.8	Ns
Test results for diabetic p	oatients		
N -07	2012		

N =37	2012	2013
BDI		
.ow	26 (70.3%)	26 (70.3%)
Moderate	9 (24.3%)	10 (27%)
Significant	2 (5.4%)	1 (2.7%)
HADS_A		
Non –case	25 (67.6%)	26 (70.3%)
Borderline	9 (24.3%)	5 (13.5%)
ase	3 (8.1%)	6 (16.2%)
ase		
HADS_D		
Non – case	18 (48.6%)	14 (37.9%)
Borderline	5 (13.5%)	8 (21.6%)
ase	14 (37.9%)	15 (40.5%)
ase		
GAD -7		
Minimal	15 (40.5%)	28 (75.7%)
moderate	22 (59.5%)	7 (18.9%)
evere	0	2 (5.4%)
GERIATRIC		
Normal	29 (78.4%)	32 (86.5%)
nild	8 (21.6%)	5 (13.5%)
evere	0	0
		•

Because we observed an increase of scores regarding depression, during the study period, we examined the percentage of patients taking psychiatric drugs. We found out that 35.1% receive psychiatric drugs during the last year, which was a greater percentage compared the previous year.

Therefore, we considered whether the physical and mental (depression, anxiety) state, increased burden, was due to a possible increase in their co morbidities (CCI). Indeed, there 78.6% of our patients, increased their Charlson Comorbidity Index.

	2012	2013	
CCI (mean±sd)	3.9±2.0	6.3±2.4	
CCI increased in 78.9% of the patients, in 14% remained the same and in			
7.1% of the patients decreased.			
-		<u> </u>	

dialysis, under the influence of medications, etc. 63.46 % of the patients improved their BDI score. 32.69% of them were not administered psychiatric drugs. One of them discontinued his treatment, as it was no longer necessary. 13.14% of the patients were during the study period on psychiatric drugs and 15.38 % were administered psychiatric

Limitations of the study: the statistical differences could be due to the way the patients have answered the questionnaires since some of them were on

drugs during the study period.

Conclusions

High degree of depression and anxiety in HD patients was found. Advanced age, psychiatric drug use and comorbidities were predisposing factors. Proper evaluation and individualized therapy succeeded in improving BDI, GAD-7 and GDS with time. However, older HD patients reported worsening of

depression. Tendency of increasing depression was associated with increased use of psychiatric drugs and more common in elderly patients with comorbidities. A variety of QOL parameters improved independently associated with depression or anxiety. By targeting depression and anxiety, we achieved

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