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Emotional well-being and Pain suffering in patients with End-Stage Renal Disease

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OBJECTIVE
End-stage renal disease (ESRD) is a chronic and life long disease which makes the patient exhausted. Furthermore, newly occurring and aggravating pain during dialysis session afflict the mood of the ESRD patients. Although the complained pain and the altered mood of the ESRD patients are well known respectively, interaction of the pain and the mood alteration in the ESRD patients is not. The aim of this study is to unveil the relationship between the dialysis associated pain and mental health in the ESRD patients.

METHODS
This study was designed as a prospective, cross-sectional study. We enrolled 94 ESRD patients and allocated them into three groups; Group 1 as those who does not have any pain; Group 2 as those who have dialysis associated pain but no pain reported in daily living; Group 3 as those who have pain not associated with dialysis session. A chart review for clinical data and demographics was conducted, and patients completed a questionnaire containing the pain characteristics and KDQOL-SFTM (Korean version of Kidney Disease Quality of Life). Demographics and clinical characteristics of the participants were analyzed and scoring of KDQOL-SF was conducted according to KDQOL manual (Table 1, 2).

RESULTS
There were no significant difference in demographics and clinical characteristics among the groups except gender, height, and comorbidities (Table 1). Pain experience in daily life showed significant difference and was the highest in the Group 3 and the lowest in the Group 1 (Table 2). New pain experience and/or pain aggravation during dialysis session also showed significant difference among the group and the Group 2 reported more than Group 1 and Group 3. Group comparison of KDQOL-SF scales showed significant difference in Pain scale category. The higher Pain scale score means the more pain free condition. Post-hoc analysis showed that the Pain scale score of Group 1 is significantly higher than that of Group 2. Emotional status affecting the Pain scale of the KDQOL-SF were described in Table 3. Emotional well-being, Role-emotion, and Energy/Fatigue scale of the KDQOL-SF showed positive correlation with the Pain scale of the KDQOL-SF and are all statistically significant. It tells us that ESRD patients in better

mood, with positive thinking on their medical condition, and with energetic life can earn less painful day.

CONCLUSIONS

Pain and altered mood in ESRD patients undergoing hemodialysis is significant matter and should not be overlooked. Maintaining positive mind affects pain perception and makes it less. Further study with large sample size should be required to clarify these tendencies.

Table1 Demographic and clinical characteristics of participants (n=94)

	Group 1 (n=19)	Group 2 (n=46)	Group 3 (n=29)	p value
Gender: male/female (n and %)	11/8 (57.9/42.1)	11/35 (23.9/76.1)	14/15 (48.3/51.7)	0.016*
Age (years, mean±SD) (range)	60.6±9 (48-76)	61.3±9.5 (37-81)	62±10.5 (46-82)	0.866
Height (cm, mean±SD) (range)	163±9.6 (145-176)	157.1±8.6 (140-180)	159.7±7 (148-174)	0.029*
Weight (kg, mean±SD) (range)	59.6±12.2 (37.7-84.3)	56.9±14.3 (34-125)	58±14.9 (38-107)	0.495
BMI (kg/m^2, mean±SD) (range)	22.4±32 (17.9/27.2)	23±4.3 (17.3-40.8)	22.7±5.1 (15.2-37.5)	0.874
Economic status (n and %)				0.870
NIHC	16 (84.2)	35 (76.1)	22 (75.9)	
Medical aid type 1	1 (5.3)	11 (23.9)	7 (24.1)	
Medical aid type 2	0 (0.0)	0 (0.0)	0 (0.0)	
Lower income group type 1	2 (10.5)	0 (0.0)	0 (0.0)	
Lower income group type 2	0 (0.0)	0 (0.0)	0 (0.0)	
Causes of ESRD (n and %)				0.829
Type1 DM	0 (0.0)	0 (0.0)	0 (0.0)	
Type2 DM	8 (42.1)	13 (28.3)	9 (31.0)	
PCKD	0 (0.0)	3 (6.5)	1 (3.4)	
Glomerulonephritis	0 (0.0)	2 (4.3)	1 (3.4)	
HTN	4 (21.1)	13 (28.3)	6 (20.7)	
Others	6 (31.6)	10 (21.7)	9 (31.0)	
Unknown	1 (5.3)	5 (10.9)	3 (10.3)	
Comorbidities (n and %)				
DM	10 (52.6)	16 (34.8)	15 (51.7)	0.243
HTN	15 (78.9)	29 (63.0)	25 (86.2)	0.074
Ischemic heart disease	4 (21.1)	3 (6.5)	4 (13.8)	0.235
CVD	3 (15.8)	6 (13.0)	4 (13.8)	0.959
Peripheral vessel disease	0 (0.0)	0 (0.0)	1 (3.4)	0.326
Malignancy	0 (0.0)	2 (4.3)	1 (3.4)	0.663
Others	4 (21.1)	2 (4.3)	0 (0.0)	0.011*

NIHC: National Health Insurance Corporation, ESRD: End Stage Renal Disease,
PCKD: Polycystic Kidney Disease, CVD: Coronary Vessel Disease

Table2 Dialysis and Pain characteristics of participants (n=94)

	Group 1 (n=19)	Group 2 (n=46)	Group 3 (n=29)	p value
HD duration (months, mean±SD)	78.8±192.8	82.1±127.6	423±109.6	0.185
(range)	(16-864)	(5-480)	(3-356)	
Frequency of vascular access re-op (n and %)				0.600
0	7 (36.8)	10 (21.7)	9 (31.0)	
1	3 (15.8)	17 (40.0)	11 (38.0)	
>1	9 (47.4)	19 (41.3)	9 (31.0)	
Locations of current vascular access (n and %)				0.176
Right upper arm	1 (5.3)	4 (8.7)	6 (20.7)	
Right forearm	3 (15.8)	3 (6.5)	4 (13.8)	
Left upper arm	10 (52.6)	24 (52.2)	13 (44.8)	
Left forearm	5 (26.3)	15 (32.6)	6 (20.7)	
Experienced pain during everyday life (n and %)				<0.001**
No	18 (94.7)	25 (54.3)	3 (10.3)	
Yes	1 (5.3)	21 (45.7)	26 (89.7)	
Experienced new pain and/or aggravation of pa in during HD session (n and %)				<0.001**
No	19 (100)	1 (2.2)	26 (89.7)	
Yes	0 (0.0)	45 (97.8)	3 (10.3)	
Aggravation of pain	0 (0.0)	39 (86.7)	1 (33.3)	
Same degree of pain	0 (0.0)	6 (13.3)	2 (66.7)	

Table 3. Linear Regression Analysis for the effects of emotional status on pain perception

Factor	Unstandardized β	SE	Standardized β	Adjucted R^2	p value
Emotional well-being	0.646	0.117	0.497	0.239	<0.001**
Role-emotion	0.249	0.053	0.443	0.188	<0.001**
Energy/Fatigue	0.657	0.104	0.55	0.294	<0.001**