P 1-73

Emotional distress in patients with cardiovascular disease and the factors associated with it

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Introduction
Emotional distress, symptoms of depression and anxiety, is common among patients after a cardiovascular disease (CVD) and is associated with an increased risk of cardiovascular morbidity. However, there is still lack of data in Korea.

Objective
The aim was to describe emotional distress in patients with CVD and to determine factors associated with it.

Methods
It was a retrospective study and 49 patients who were admitted to the hospital due to CVD from March to June 2019 were enrolled. Emotional distress of depression and anxiety were evaluated with Beck anxiety inventory (BDI) and Beck anxiety inventory (BAI) respectively, which were performed in a week since disease onset. Baseline characteristics including sex, age, type of CVD (myocardial infarction or angina), previous history and family history of CVD, hypertension, diabetes mellitus, dyslipidemia, body mass index (BMI), smoking, alcohol consumption, and Korean activity scale index (KASI) were collected. The relationship between the presence of emotional distress and the baseline characteristics were analyzed with Chi-square test or Mann-Whitney U test. The relationship between the degree of emotional distress assessed with raw score of BDI and BAI and the baseline characteristics were analyzed with Pearson's correlation analysis.

Results
The baseline characteristics of the patients are shown in Table 1. Depression was found in 18 (37.5%) patients, and anxiety was found in 24 (50.0%) patients. Presence of depression after the CVD showed correlation with presence of family history of CVD (p=0.022) and low KASI raw score (p=0.043). Presence of anxiety after the CVD showed correlation with high KASI class (p=0.044) (Table 2). When relationship between the degree of emotional distress assessed with raw scores of BDI and BAI and the baseline

characteristics were analyzed, KASI raw score was negatively associated with BDI raw score (p=0.019) (Table 3).

Conclusion

Many patients with cardiovascular disease experience depression and anxiety in a week since disease onset. Family history of CVD was related with depression and decreased activity was related with depression and anxiety. Because persistent emotional distress is associated with increased mortality, follow up assessment of emotional distress and specific treatment are needed in this group.

Table 1. Baseline demographic characteristics, and emotional distress in patients with cardiovascular diseases

		Values
Sex (Male : Female)		37 (75.5) :12 (24.5)
Age		60.8 ± 10.8
Myocardial Infarction : Angina		24 (49.0) :25 (51.0)
Previous history of CVD		15 (30.6)
Family history of CVD		3 (6.1)
Hypertension		30 (61.2)
Diabetes Mellitus		18 (36.7)
Dyslipidemia		18 (36.7)
BMI	Normal (BMI < 23)	15 (31.3)
	Overweight (23 ≤ BMI)	12 (25.0)
	Obesity (25 ≤ BMI)	19 (39.6)
	Extreme obesity (30 ≤ BMI)	2 (4.2)
Smoking	Non-smoker	23 (46.9)
	Ex-smoker	10 (20.4)
	Smoker	16 (32.7)
Alcohol		24 (49.0)
KASI raw score		43.0 ± 15.6
KASI class	I (46 ≤ KASI)	22 (44.9)
	II (24 ≤ KASI < 46)	21 (42.9)
	III (4 ≤ KASI < 24)	5 (10.2)
	IV (KASI < 4)	1 (2.0)
Depression	Normal (BDI ≤ 13)	30 (62.5)
	Mild (14 ≤ BDI ≤ 19)	9 (18.8)
	Moderate (20 ≤ BDI ≤ 28)	6 (12.5)
	Severe (29 ≤ BDI)	3 (6.3)
Anxiety	Normal (BAI ≤ 7)	24 (50.0)
	Mild (7 < BAI ≤ 15)	18 (37.5)
	Moderate (15 < BAI ≤ 25)	5 (10.4)
	Severe (25 < BAI)	1 (2.1)

Values are presented as mean ± SD or number (%).
BMI: Body mass index; CVD: Cardiovascular disease; KASI: Korean activity scale index; BDI: beck depression inventory; BAI: beck anxiety inventory.

Table 2. Relationship between the presence of depression and anxiety and the baseline characteristics

		Depression (+) (n=18)	Depression (-) (n=30)	p-value	Anxiety (+) (n=24)	Anxiety (-) (n=24)	p-value
Sex	Male	14 (77.8)	22 (73.3)	0.733	17 (70.8)	19 (79.2)	0.509
	Female	4 (22.2)	8 (26.7)		7 (29.2)	5 (20.8)	
Age		61.6±12.7	60.6±9.8	0.759	59.8±12.6	61.4±8.9	0.599
Previous history of CVD		6 (33.3)	8 (26.7)	0.626	5 (20.8)	10 (41.7)	0.123
Family history of CVD		3 (16.7)	0 (0.0)	0.022*	3 (12.5)	0 (0.0)	0.077
HTN		12 (66.7)	18 (60.0)	0.648	14 (58.3)	15 (62.5)	0.770
DM		6 (33.3)	12 (40.0)	0.648	9 (37.5)	9 (37.5)	1.000
Dyslipidemia		8 (44.4)	10 (33.3)	0.446	9 (37.5)	9 (37.5)	1.000
BMI raw score		24.3±4.1	24.9±2.8	0.601	24.9±3.8	24.5±2.9	0.705
BMI	Normal	5 (29.4)	9 (30.0)	0.581	6 (26.1)	9 (37.5)	0.868
	Overweight	6 (35.3)	6 (20.0)		6 (26.1)	5 (20.8)	
	Obesity	5 (29.4)	14 (46.7)		10 (43.5)	9 (37.5)	
	Extreme obesity	1 (5.9)	1 (3.3)		1 (4.3)	1 (4.2)	
Smoking	Non-smoker	6 (33.3)	17 (56.7)	0.233	14 (58.3)	9 (37.5)	0.352
	Ex-smoker	4 (22.2)	6 (20.0)		4 (16.7)	6 (25.0)	
	Smoker	8 (44.4)	7 (23.3)		6 (25.0)	9 (37.5)	
Alcohol		9 (50.0)	14 (46.7)	0.825	9 (37.5)	14 (58.3)	0.153
KASI raw score		36.7±16.8	45.8±13.4	0.043*	40.0±15.7	45.5±15.6	0.230
KASI class	I	6 (33.3)	15 (50.0)	0.265	7 (29.2)	14 (58.3)	0.044*
	II + III + IV	12 (66.7)	15 (50.0)		17 (70.8)	10 (41.7)	

*P<0.05 by Chi-square test or Mann-Whitney U test.

Table 3. The relationship between the degree of emotional distress and the baseline characteristics

		BDI	BAI
Age	r	0.145	-0.009
	p	0.325	0.951
	n	48	48
BMI	r	-0.181	-0.096
	p	0.223	0.521
	n	47	47
KASI raw score	r	-0.338	-0.146
	p	0.019*	0.322
	n	48	48

*p<0.05 by Pearson's correlation analysis.