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Evaluation of the Prevalence of Depressive Symptoms and Related Factors Following Initial Myocardial Infarction

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Abstract: High incidence of Myocardial Infarction (MI) and decreasing age of its occurrence urge to identify complications and factors increasing the mortality due to MI. One of these complications is depression after MI, which causes mortality and morbidity independent to other risk factors and severity of MI. The purpose of this study was determining the prevalence of depressive symptoms and related causes in patients with the first episode of MI. This study was undertaken on 150 patients with the first episode of MI, 48 h after the event. The patients completed Beck Depression Inventory (BDI) two and six days after the cardiac attack. Exclusion criteria were pervious psychiatric history in patients and/or families and debilitating diseases in patients. The related factors were age, gender, type of infarction and Q waves in ECG. Data analysis was carried out using χ^2 test. In this study, the incidence of depressive symptoms was 60.7%, 48 h after MI. 22.7% was mild, 26% moderate and 12% severe. After 6 days, the overall incidence of depressive symptoms was 72%; 22% mild, 32% moderate and 18% severe respectively. The initial severity and persistence of the symptoms were more in women than men at 6 days after MI. Considering the high incidence of depressive symptoms after MI, assessment and psychiatric consultation are recommended.

Key words: Depression, myocardial infarction, prevalence, mortality, disability

INTRODUCTION

Depression is common in patients with MI, the treatment is often complex due to delay in diagnosis. Depression may augment debilitating the disease, increase pain and decrease therapeutic acceptance and can affect the prognosis of the disease. Somatic disorders can limit therapeutic management of depression and aggravate the severity of prognosis (Constant *et al*., 1999). The newest hypothesis of depression etiology is "common final pathway". The principle of this hypothesis is based on a stressor in life, events by their stressor role, associated with other predisposing factors such as hereditary and life style that mimic the causative role for depression. Among events, loss of family members, separation, natural events and life-threatening diseases can be listed. Considering that, MI is a life-threatening disease; it can be causative agent of depression. Moreover, MI causes secondary depression due to limitation of patient physical activity. The incidence of depressive symptoms in Coronary Artery Disease (CAD) and acute MI (AMI) was reported 48.4 and 52.6%, respectively (Lesperance *et al*. 2002). Another study reported 31%, 2-15 days after AMI (Lane *et al*., 2002). Considering the high prevalence of MI and decreasing the age of occurrence of the disease and since most of the patients are of high income and social status and because MI causes hypo-activity and sedentary life style, which may lead to progression to essential depression, assessment of the etiology of post MI depression, seems necessary (Braunwald, 1997). Meanwhile, management of depression after MI has an important role in rapid recovery of the patients, good prognosis and life style (Cleophas, 1998). The purpose of this study was to evaluate the prevalence of depressive symptoms and related factors, following initial MI in patients referred continuously to Imam Khomeini and Razi hospitals in Sari and QaemShar, Mazandaran, Iran. Since, there was no study about the depressive symptoms after the first episode of MI, studying the prevalence of depressive symptoms in the first attack could help to recognize the symptoms better and prevent the intensity and recurrence of MI. Moreover, it can increase patient compliance to treatment.

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MATERIALS AND METHODS

This descriptive study was done on 150 MI patients with the following symptoms: at least two symptoms of typical ischemic chest pain lasting for at least 20 min, presence of new pathologic Q waves on the ECG, a peak Creatinine Phosphokinase (CPK) level >1.5 times the normal limits (Lane *et al*., 2002) and admission in CCU. Inclusion criteria were no history of severe somatic disorders, previous MI and depression in patients or family members. According to the criteria, 150 subjects were selected. Beck questionnaire was used to measure the severity of depression. The baseline of this test is on cognitive hypothesis and the questionnaire is based on insight about personal life status and the effects of environmental factors. This questionnaire has 21 items; each item has four options, ranges from 0-3. The patients were evaluated and interviewed in CCU 48 h after MI. The interview was repeated six days after MI in Post-CCU. There were four ranges to measure the severity of depressive symptoms: Normal (0-10), mild (11-18), moderate (19-25) and severe (26-35). The data were analyzed using descriptive statistics and χ^2 test (Beck, 1961)

RESULTS

From 150 patients who completed the Beck questionnaire, 107(71%) were men and 43(29%) women. The mean age of men and women were 57.6 and 58.8years respectively. The mean age of all subject, was 57.9. The severity of depression during the first 48 h after MI differentiated by gender is shown in Table 1.

According to Table 1, 8.66% of men had severe depression and 32.66% had no depression, however, these rates were 3.33 and 6.66%, respectively in women. Considering χ^2 test, there were significant relationship between depression and gender ($p = 0.02$), that means severe depression in women is more frequent than men during the 1st 48 h post MI. Data from assessment of patients in post-CCU 6 days after MI are shown in Table 2. There was a significant relationship between depression and gender ($p<0.01$), that means the severity of depression in women is more than men 6 days after MI. However, the severity of depression at day 2 and day six after MI (between two interviews) was not significantly different.

Another variable was ECG changes and their relationship with severity of depression. Ninety out of 150 subjects had pathologic Q waves (QMI) and the severity of depression was significantly higher in the subjects compared to 60 others with non pathologic Q waves ($p<0.01$). In addition, there was no significant relation between the type of MI and severity of depression (Table 3).

Table 1: Distribution of 150 patients with MI based on gender and according to severity of depression in post MI

	Severity of depression				
Gender	Normal no. (%)	Mild No. (%)	Moderate No. (%)	Sever No. (%)	Total
Man	49(32.66%)	18(12%)	27(18%)	13(8.66%)	107
Woman	10(6.66)	16(10.66%)	12(8%)	5(3.33%)	43
Total	59(39.33%)	34(22.66%)	39(26%)	18(12%)	150

Table 2: Distribution of patients with MI by differentiation of gender and according to severity of depression at 6 days after MI

	Sex		
Severity of depression	Man no. (%)	Woman no. (%)	Total no. (%)
Normal	34(87.2%)	5(12.8%)	39(100%)
Mild	28(77.8%)	8(22.2%)	36(100%)
Moderate	29(60.4%)	19(39.6%)	48(100%)
Sever	16(59.3%)	11(40.7%)	27(100%)
Total	107	43	150

Table 3: Distribution of patients with MI according to severity of depression and by detection type of MI

	Severity of depression				
Type of MI	Normal no. (%)	Mild no. (%)	Moderate no. (%)	Sever no. (%)	Total no. (%)
Anterior	8(16.7%)	30(58.8%)	12(37.5%)	6(33.3%)	55(36.7%)
Inferior	18(37.5%)	9(17.6%)	9(28.1%)	7(38.9%)	44(29.3%)
Posterior	10(20.8%)	6(11.8%)	5(15.6%)	3(16.7%)	24(16%)
Antero-lateral	12(25%)	6(11.8%)	7(21.8%)	2(11.1%)	27(18%)
Total	48	51	33	18	150(100%)

DISCUSSION

According to this study, more than half of the patients with initial MI had depressive symptoms similar to what reported by Lesperance *et al.* (2002) who showed that the prevalence of depression was more among single, low educated women and there was no relation between Q waves and age with depression. However, based on our study, there was a significant relationship between age, gender and presence of Q waves and depressive symptoms. This controversy seems due to inadequate study about Q waves related depressive symptoms, hence, further case-control studies are recommended to elucidate the issue. Several studies presented the prevalence of depression between 13-32% (Lane *et al*., 2002; Frasur-smith *et al*., 1995; Gregory *et al*., 2002) without differentiating the episode of MI. Our relatively higher rates might be related to assessment of depression after the first episode of MI, during which a patient experiences threatening and emotional events initially. In another study, the incidence of depressive symptoms

reported 17.5% in post-CCU that was significantly different with our study. This could be because of the difference in the method and questionnaire used (HAD vs. BDI) (Mayou *et al*., 2000).

Depressive symptoms associated with MI have a negative role on cardiovascular system prognosis. Mortality and morbidity are four to nine times more after 18 months of initial MI. Therefore, post - MI depression, like hyper-cholestremia as an etiologic factor has a known role in prognosis of depression.

Simultaneous prevalence of depressive symptoms and MI is 13-20% after one-year post MI. In a study by Oversan medical research group in 1999, on 377 male patients with mean age of 53 years using interview diagnostic test, 10 days after MI to assess the impact of mood state, worry and copying style, as a reaction to the disease, 13.3% severe depression was reported similar to the frequency of depression in primary days post MI with no significant differences with 3-12 months later (Frasur-Smith *et al*., 1993, 1995).

CONCLUSION

Considering the relatively high prevalence of depression after MI, psychological consultation could be the baseline of further studies.

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