

Quality of Life after Coronary Revascularization in Patients with Acute Myocardial Infarction

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ABSTRACT

Background: The quality of life (QoL) in acute myocardial infarction (MI) patients can be improved using 3 therapeutic methods — surgical, pharmaceutical and physical. **Study aim:** We sought to assess the QoL in patients following an acute MI, with or without percutaneous coronary intervention (PCI). **Material and methods:** A number of 54 patients with acute MI were included in the study. All subjects were asked to complete the EQ-SD questionnaire at baseline, and during the 12-month follow-up. The questionnaire consists of 2 parts: 1st part — assesses the mobility, self care, activities of daily life (ADL), pain, depression and anxiety; 2nd part — visual analogue scale (VAS) for the overall state. Patients were divided into 4 groups: Group 1 — all patients (n = 54); Group 2 — males (n = 40), Group 3 — female patients (n = 14), and Group 4 — patients who underwent a PCI procedure (n = 48). Blood pressure (BP) was also monitored. **Results:** The mean age was 66.54 years. There were no differences between the groups at baseline, and after 1 year regarding the BP. No differences were observed regarding the VAS (baseline p = 0.990; 12-month p = 0.991). Concerning the PCI vs. non-PCI groups, no differences were found in relation to mobility, self-care, ADL, pain and depression at baseline or after 12 months. For all groups at baseline, the limited mobility was positively correlated with impaired self-care (p = 0.041) and lower ADLs (p = 0.003). After 1 year, a limited mobility was associated with defective self-care (p <0.001) and decreased ADLs (p = 0.004) and there was an improvement in mobility (p = 0.0002) and self-care (p <0.0001), compared to baseline. The PCI group associated pain with depression at baseline (p <0.001) and limited mobility with lack of ADLs (p = 0.005). At 12 months, we observed an improvement in mobility, self-care (p <0.001), and the ADLs (p <0.001). The males showed a positive association between depression and pain (p <0.001) at baseline, but not after 1 year. Mobility was the only parameter that had improved during follow-up (p = 0.043). In the female group, pain (p = 0.015) and mobility (p = 0.033) had improved after 12 months. **Conclusions:** The QoL had improved in terms of mobility, self-care and new skills acquired after PCI. Both depression and pain were ameliorated in the male group, despite the lack of improvement on VAS for the overall state.

Keywords: quality of life, myocardial infarction, PCI, 12-month follow-up

BACKGROUND

The quality of life (QoL) in patients with at least one episode of acute myocardial infarction (MI) can be changed using rehabilitation methods (surgical, pharmaceutical and physical). Despite the international recommendations to apply all the rehabilitation strategies, less than a quarter of MI patients undergo all three methods of treatment in order to improve their QoL.

The main aim of our study was to investigate the quality of life in patients following an episode of acute myocardial infarction and coronary revascularization, thus building a background for local strategies to be applied in cardiac patients, in order to fulfill their need and to upgrade their outcomes.

MATERIAL AND METHODS

Study design

A survey extended for twelve months that included 54 patients diagnosed with an episode of myocardial infarction, was conducted in the Cardiology Clinic of the Clinical County Hospital of Tîrgu Mureş.

Patients

The subjects were grouped as follows: Group 1 – all the patients enrolled in the study (n = 54), Group 2 – male patients (n = 40), Group 3 – female patients (n = 14) and Group 4 – patients who underwent coronary revascularization with primary percutaneous coronary intervention (pPCI) (n = 48). The present study was conducted in accordance with the Declaration of Helsinki and was approved by the local ethics committee.

Parameters followed

EQ-5D is a QoL validated questionnaire that was completed by the patients during the screening visit and at 12 months follow-up. The questionnaire consisted of two parts: the first part was assessing mobility, self-care, ac-

tivities of daily life (ADL), the degree of pain, depression and anxiety; the second part consisted of a visual analogue scale (VAS) for the patient to grade its overall state.

Blood pressure (systolic, diastolic, mean arterial pressure – MAP) was also monitored. The mean arterial blood pressure was measured as two times the diastolic value plus the systolic value, divided by three. The aimed value in order to maintain the coronary perfusion was set above 60 mmHg.

Statistical analysis

The data was analyzed using Graph Pad Prism 6.0 software. The following statistical tests were applied: Spearman rank correlation, Kruskal Wallis test and paired t test.

RESULTS

The mean age of the study population was 66.54 years. The demographic data were similar in all four groups. The blood pressures (systolic, diastolic and MAP) were similar at baseline and after 12 months in all four groups (Table 1 and Table 2). The same results were observed when the VAS for the overall state was evaluated (Table 3).

No differences were observed between the subtypes of patients when analyzing the VAS (baseline: $p = 0.9909$, at 12 months: $p = 0.991$).

When evaluating the correlations between patients who underwent PCI vs. non-PCI, no differences were observed in relation to the degree of mobility, self-care, ADLs, pain and depression at baseline. Furthermore, we observed no significant differences between the two groups at the 12-month follow-up. However, when analyzing all groups of patients at baseline, limited mobility was positively correlated with impaired self-care ($p = 0.041$, $r = 0.278$) and lower ADLs ($p = 0.003$, $r = 0.390$). Similar results were recorded after one year with a limited mobility linked to defective self-care ($p < 0.001$, $r = 0.566$) and decreased ADLs ($p = 0.004$, $r = 0.380$). Furthermore, we observed that after 12 months there was an improvement of mobility ($p = 0.0002$) and self-care ($p < 0.0001$), compared to baseline.

TABLE 1. Blood pressure at baseline

Baseline	Systolic BP	Diastolic BP	Mean BP
All patients	134.3 ± 13.99	82.50 ± 7.75	99.63 ± 8.98
Male patients	133.6 ± 13.68	82.63 ± 8.00	99.55 ± 8.97
Female patients	136.1 ± 15.21	82.14 ± 7.26	99.86 ± 9.33
PCI patients	134.5 ± 14.15	82.66 ± 7.36	99.79 ± 8.75
p (Kruskall Wallis test)	0.9771	0.9822	0.9982

TABLE 2. Blood pressure at 12 months

Baseline	Systolic BP	Diastolic BP	Mean BP
All patients	135.0 ± 14.66	82.87 ± 8.02	100.3 ± 9.43
Male patients	134.6 ± 14.64	83.12 ± 8.34	100.3 ± 9.64
Female patients	136.1 ± 15.21	82.14 ± 7.26	100.1 ± 9.17
PCI patients	135.3 ± 14.89	83.08 ± 7.68	100.5 ± 9.27
p (Kruskall Wallis test)	0.9926	0.9563	0.9944

However, three parameters of QoL remained unchanged at 1 year of follow-up: ADLs ($p = 0.204$), pain ($p = 0.086$) and depression ($p = 0.092$).

When analyzing the groups by gender, we observed that the male population showed a positive association between depression and pain ($p < 0.001$, $r = 0.587$) at baseline, but not during the 12-month follow-up. Moreover, mobility was linked with ADLs at baseline ($p = 0.001$, $r = 0.478$) and after 12 months. The ADLs was also correlated with self-care at 12 months. Mobility was the only parameter that had improved at follow-up compared to baseline in the male population ($p = 0.043$).

The number of women included in the study was insufficient; therefore correlation analysis at baseline and 12 months could not be performed. Nevertheless, pain ($p = 0.015$) and mobility ($p = 0.033$) improved after 12 months.

At screening, the PCI patients associated pain with depression ($p < 0.001$, $r = 0.612$) and limited mobility with lack of ADLs ($p = 0.005$, $r = 0.397$). At 12 months follow-up, we observed an improvement in mobility and self-care ($p < 0.001$, $r = 0.699$), and also in the ADLs ($p < 0.001$, $r = 0.699$).

DISCUSSIONS

Starting from the results of the Gupta group that emphasized on the poorer quality of life, in terms of depression, perception of social support and health, in the case of patients with MI vs. healthy subjects, our study aimed to analyze the standpoint of MI patients only.¹ As expected, we

observed an impaired status of health from the screening that improved in terms of mobility and increased abilities for self-care and ADLs in both PCI and non-PCI patients. Unfortunately, the depression and pain resolution was seen only in men, with no discrimination between PCI vs. non-PCI groups. These results are in concordance with a study published by Rancic *et al.*, who evaluated 160 patients with acute MI after 1 month of management, showing improvement in regards to pain, depression and self-care.²

Symptoms such as physical limitation due to pain or depression due to chronic pain were improved after one year despite the evaluation of global status on the VAS scale. Those data are in concordance with the data from a study carried out by Wadie *et al.*³

The means of treatment such as coronary artery bypass graft (CABG) versus percutaneous coronary intervention (PCI) showed small differences in terms of QoL outcome as noticed in the FREEDOM study, therefore we were not concerned about the initial management of patients enrolled in our study (only PCI patients). Similar reports were published by Wadie *et al.*^{3,4}

The main limitation of our study was the low number of non-PCI and female patients.

CONCLUSIONS

The quality of life (QoL) had improved in terms of mobility, self-care and new skills were acquired after coronary revascularization. Both depression and pain were amelio-

TABLE 3. VAS for overall state — at baseline and at 12-month follow-up

Baseline	Baseline	12 months
All patients	76.41 ± 12.04	82.26 ± 7.49
Male patients	76.15 ± 12.39	82.43 ± 6.68
Female patients	77.14 ± 11.39	81.79 ± 9.72
PCI patients	76.94 ± 11.83	82.77 ± 6.90
p (Kruskall Wallis test)	0.990	0.991

rated in the male group, despite the lack of improvement on the VAS for overall state. In order to rule out the lowest point of the study, further enrollment of patients is to be considered (especially women and non coronary revascularization patients).

CONFLICT OF INTEREST

None declared.

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