

Quality of Life of patients undergoing coronary artery bypass grafting

Qualidade de Vida de pacientes submetidos à revascularização do miocárdio

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Keywords

Quality of life; Myocardial revascularization; Myocardial diseases/surgery; Cardiac surgical procedures; Treatment outcome

Descritores

Qualidade de vida; Revascularização miocárdica; Doenças do miocárdio/cirurgia; Procedimentos cirúrgicos cardíacos; Resultado de tratamento

Submitted

November 5, 2013

Accepted

November 27, 2013

Abstract

Objective: Determining the impact of coronary artery bypass grafting on the Quality of Life of patients, analyzing and comparing dimensions of Quality of Life before and after surgery; comparing sociodemographic and clinical variables with the aspects of depression and anxiety, in the pre and postoperative periods.

Methods: A descriptive exploratory study in which 78 patients were included in the pre and postoperative periods. International instruments of research were used and validated to assess quality of life and the aspects of depression and anxiety.

Results: There was significant improvement in all domains of the Quality of Life, depression and anxiety ($p=0.05$). The physical and social domains of the 36-Item Short-Form Health Survey showed lower scores (13.46 and 3.03, respectively), as well as the social domain of the Macnew instrument (3.03).

Conclusion: Coronary artery bypass surgery caused positive impact on the Quality of Life of these patients.

Resumo

Objetivo: Determinar o impacto da cirurgia de revascularização do miocárdio na Qualidade de Vida dos pacientes; analisar e comparar dimensões da Qualidade de Vida antes e após a intervenção cirúrgica; comparar variáveis sociodemográficas e clínicas aos aspectos de depressão e ansiedade, pré e pós-operatórios.

Métodos: Estudo descritivo exploratório no qual foram incluídos 78 pacientes no pré e pós-operatório. Foram utilizados instrumentos de pesquisa internacionais e validados para avaliar a qualidade de vida e os aspectos de depressão e ansiedade.

Resultados: Houve melhora significativa em todos os domínios da Qualidade de Vida, depressão e ansiedade ($p=0,05$). Domínios físico e social do *36-Item Short-Form Health Survey* apresentaram menor pontuação dos escores (13,46 e 3,03, respectivamente), bem como o domínio social do instrumento *Macnew* (3,03).

Conclusão: Cirurgia de revascularização ocasionou impacto positivo na Qualidade de Vida desses pacientes.

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Conflicts of interest: no conflicts of interest to declare.

Introduction

Political, economic and social transformations in recent decades generated a process of demographic and epidemiological transition. The increased longevity of the population - in particular arising from the change in the profile of children mortality and infectious diseases for a profile of mortality at older ages caused by external chronic diseases - is one of those transformations.⁽¹⁾

Heart failure occurs due to physical and psychological symptoms, and is identified as the outcome of most cardiovascular diseases. Once installed, it has a strong impact on the lives of patients.⁽²⁾ Heart failure is recognized worldwide as a public health problem, since it increases every year and also represents major costs to social insurance programs with medical leaves and early retirements.

Medical and surgical advances in the treatment of patients with heart failure have enabled the survival of people suffering from cardiovascular diseases by modifying the morbidity and mortality related to the disease. Among these advances come the new classes of drugs that allow survival and improvement in the Quality of Life of patients. However the recognition and prompt treatment are essential in preventing factors that may exacerbate heart failure.⁽³⁾

Myocardial revascularization performed with ideal conditions guarantees the improvement of symptoms caused by heart failure, increased survival and consequently, provides gain in Quality of Life of these individuals.⁽⁴⁾ The Quality of life related to cardiovascular disease and the impact of treatment on the lives of individuals have both been considered relevant objects of research. Such objects, in addition to evaluating the therapeutic results, also generate hypotheses and reflections that permit increased focus of studies on Quality of Life, seeking methodological, theoretical and conceptual alternatives.⁽⁵⁾

Studies on the Quality of Life and clinical practice in health services have been an important process for clinical decision making and determination of the therapeutic benefit as a means

of assessing patient survival after coronary artery bypass grafting.⁽⁵⁾ At the same time, these studies provide actions to improve the rehabilitation of patients through the instruments of Quality of Life, developing care programs of assistance and health care for individuals and communities according to their needs, as well as promoting favorable conditions to participate in the care of one's health in a more integrated way.⁽⁵⁾

The coronary artery diseases are multifactorial and interfere in the health of individuals in several dimensions, and the coronary artery bypass grafting is not curative, but an invasive treatment which aims to promote a better quality of life. Taking these factors into consideration, this study aimed to determine the impact of coronary artery bypass grafting on the quality of life of patients in order to build a shared practice of Health Education, allowing the experience of the daily life of individuals in relationships that influence the quality of their lives.

Methods

This is a descriptive, exploratory study carried out at the outpatient clinic of a university hospital located in the southeastern region of the state of São Paulo. The sample of this study consisted of 78 patients who underwent coronary artery bypass grafting in the years 2011 and 2012. Inclusion criteria were: patients of both genders, either in the preoperative period of myocardial revascularization or in two months of post-operative period.

Data collection occurred on days scheduled for outpatient consultation with the use of individual interviews. For sociodemographic and clinical information the following aspects were recorded: gender, age, marital status, education, previous chronic diseases, smoking habits, number of affected arteries and body mass index.

An instrument called *The 36-Item Short-Form Health Survey* (SF-36) was applied to evaluate the Quality of Life. It is a generic multidimensional instrument⁽⁶⁾ composed of 36 items covering eight scales or domains: physical functioning, physical

aspects, vitality, pain, general state of health, social aspects, emotional aspects and mental health. Each dimension is analyzed separately with scores ranging from zero to one hundred; zero reflecting the worst state of general health and one hundred, the best state of health.⁽⁷⁾

Another instrument used was the *Macnew Heart Disease Health-Related Quality of Life Questionnaire* (MacNew) which is specific for coronary artery disease patients with angina and/or heart attack. It consists of 27 items distributed in three different domains: physical function, emotional function, and social and global functions. Each item consists of a scale of Likert-type response with scores ranging from one to seven points. Higher scores indicate better Quality of Life. All instruments were translated, adapted and validated in Brazil.^(8,9)

In order to eliminate the bias of the clinical and psychological factors, the instrument called Beck Depression Inventory was used. It is a self-assessment tool used both in researches and in the clinic.^(10,11) The original scale consists of 21 items, including symptoms and attitudes whose intensity varies from zero to three.⁽¹⁰⁾

The State-Trait Anxiety Inventory (STAI) is a self-assessment questionnaire that consists of two scales designed to measure two concepts of anxiety: state anxiety and trait anxiety.⁽¹²⁾ Each scale consists of 20 statements of four points (one to four) in which the individual indicates the intensity of anxiety at that moment (State-Trait Anxiety Inventory – State) or the frequency with which it occurs (State-Trait Anxiety Inventory – Trait). The total score of each scale ranges from 20 to 80 and higher values indicate higher levels of anxiety.⁽¹²⁾

Data were analyzed using the *Statistical Package for Social Science* (SPSS) for calculation of descriptive analysis, and analysis by the *t* test for samples, checking if results were statistically significant ($p < 0.05$) or 5%. The reliability of measures of Quality of Life, depression and anxiety was assessed by the internal consistency of items and domains using the Cronbach's alpha coefficient (values > 0.70 were considered acceptable).

The development of the study followed national and international standards of ethics in research involving human beings.

Results

The sample consisted predominantly of men (67%), with a mean age of 60 years (± 8.08), ranging between 40 and 71 years. Regarding marital status, 56 patients were married (72%) and in relation to education, 43 had incomplete primary education (55%).

Regarding the clinical characteristics and risk factors, hypertension was predominant in 77% of subjects, followed by: overweight (72%), smoking (64%), dyslipidemia (58%) and *diabetes mellitus* (38%). It was found that 67% of the population progressed to acute myocardial infarction, 62% had three or more affected arteries and 77% did not have stenosis.

The measures of Quality of life assessed by the specific instrument Macnew and generic instrument SF-36 are shown in tables 1 and 2. In the data analysis through Macnew the social domain had the lowest mean score (3.03 ± 1.91) and the emotional domain had the highest mean score (5.66 ± 0.92) before the intervention. Regarding the SF-36, the lowest scores were in relation to the domains of physical aspects (13.46 ± 30.87) and physical functioning (48.14 ± 44.75).

When comparing the scores of instruments of Quality of Life in the pre and postoperative periods, they showed significant improvement in all domains.

Table 1. Descriptive analysis of MacNew domains

McNew	MacNew Domains				p-value
	Preoperative		Postoperative		
	Mean	SD	Mean	SD	
Physical	4.90	1.35	5.80	1.02	<0.001
Emotional	5.66	0.92	5.08	0.61	<0.001
Social	3.03	1.91	3.69	1.66	<0.001
Global	4.60	0.12	5.57	0.82	<0.001

Legend: SD – Standard deviation

Table 2. Descriptive analysis of *The 36-Item Short-Form Health Survey* (SF-36) domains

SF-36	Preoperative		Postoperative		p-value
	Mean	SD	Mean	SD	
Functional ability	48.14	27.76	69.87	23.35	<0.001
Physical aspects	13.46	30.87	34.94	44.75	0.002
Pain	60.19	33.66	70.22	28.15	0.024
General state of health	67.12	22.78	80.38	20.91	<0.001
Vitality	55.13	29.60	77.82	22.70	<0.001
Social aspects	71.63	33.14	88.94	22.61	<0.001
Emotional aspects	54.27	47.78	69.66	45.96	0.044
Mental health	67.08	24.96	82.00	18.63	<0.001

Legend: SD – Standard deviation

Although this study did not aim to assess anxiety nor depression, the levels of these aspects were measured to maintain the homogeneity of the groups, as presented in table 3.

The reliability of the instruments was assessed by Cronbach's alpha - which proved to be suitable for the study – with value above 0.77.

Table 3. Descriptive analysis of the Beck Depression Inventory and the State-Trait Anxiety Inventory

Scales	Beck Depression Inventory and STAI				p-value
	Preoperative		Postoperative		
	Mean	SD	Mean	SD	
Beck Depression	8.49	6.87	5.01	6.61	<0.001
STAI-State	36.77	0.92	32.54	0.74	<0.001
STAI-Trait	37.63	1.14	34.04	0.97	<0.001

Legend: SD – Standard deviation

Discussion

The limitation of results of the study was due to the eligibility selected for data collection, which occurred two months after the surgical procedure. The postoperative follow-up is performed in a different health unit, however, for this study, patients were asked to return to the hospital in two months for data collection.

The applicability of the results of this study are subsidies to help health professionals undertake actions in health education regarding the promotion and planning of healthcare, aimed at patients' adherence to treatment and prevention of new events. Furthermore, the individual change of patients in relation to disease perception (control and treatment) can ground future educational programs and health practices.

The predominance of male, elderly subjects of low socioeconomic class was similar to that reported by other studies carried out in Brazil. This may be indicative of the socioeconomic pattern and profile of patients treated in public hospitals insured by the Unified Health System.^(13,14)

Women are protected by hormonal issues against cardiovascular disease during childbearing years - the possible role of estrogens - which could explain their lower incidence the studied sample. In general, cardiovascular disease in women is manifested ten years later than in men and is associated with multiple concomitant risk factors.^(15,16)

Assessment of Quality of Life in the physical domain aspect of the generic instrument showed the worst score before coronary artery bypass surgery. This domain assesses mainly daily activities, demonstrating the major limitation of the patient in these activities as a result of the aging process and its comorbidities and thus a worse Quality of Life. However, after surgery there was improvement in the score for that domain, which is justified by the fact that patients improved their performance of daily duties. A previous study reported that heart failure is associated with impairment of physical functioning performance, translated by reports of seniors on limitations in daily activities, inability to work and to establish social relationships, as well as loss of independence.⁽¹⁷⁾

Functional independence is defined as the ability to do something with one's own means and is associated with mobility and physical functioning, when the individual does not require help to perform activities of daily living. Thus, a satisfactory Quality of life can be interpreted as the ability to successfully fulfill the basic daily functions, feel good and live independently.⁽¹⁷⁾

The other domains of the generic instrument also showed significant improvement in scores. This result was similar to other studies.^(13,18)

When comparing the Quality of Life in the pre and postoperative periods with the MacNew specific instrument, the surgery provided significant improvements in all domains. Other studies that analyzed the Quality of Life of patients who underwent coronary artery bypass surgery showed similar results.^(13,19,20)

The success of surgical treatment can be interpreted as a positive impact on patient's life, as well as providing a sense of cure.⁽²¹⁾ Prior to surgery, patients suffer from the constant fear of death, especially by the necessary changes in habits in order to prevent a new episode of illness.⁽²²⁾ With the coronary artery bypass grafting there is a greater physical functioning and decrease of symptoms, and consequently, a better living with this condition.⁽¹³⁾ Moreover, the emotional changes associated with insecurity and fear of a new event that could happen are minimized with surgical treatment.

Specifically for the MacNew instrument, the greatest impact was in the social domain. Social support has been considered a determining factor in the recovery of cardiac patients and for their greater Quality of Life. The fact that the heart is considered a noble organ - the center of life - can justify the increased perception of individuals in relation to their family and friends.⁽²³⁾

Studies report that social support is a facilitating factor for coping with the disease and in the recovery of cardiac patients, suggesting that patient participation in rehabilitation activities improves the psychosocial aspects and the Quality of Life.⁽²⁴⁾ However, health professionals can use assessments in social support in order to detect individuals who will have greater difficulties in rehabilitation, since this may influence the need of changing to a behavior conducive to cardiovascular health.⁽²³⁾

Regarding risk factors, these were similar to those observed in other studies.^(25,26) The literature reveals that changes in lifestyle could potentially reduce the risk of myocardial infarction hence, reducing mortality. However, the complexity of self-care which involves monitoring the therapeutic regimen,

diet and physical activity can be a disincentive for chronically ill patients.

In this study, although the verification of depression and anxiety was not the main objective, subjects showed average levels of anxiety and absence of depressive levels, despite the improvements in scores for depression and anxiety after revascularization.

Depression is one of the most common mental health problems and is present in 10-15% of patients. It can negatively influence the Quality of Life of patients by increasing the feeling of pain and disability, making adherence to treatment more difficult and worsening the quality of social relationships and consequently, patients' quality of life.⁽²⁷⁾

Cardiovascular disease and its risk factors are elements that interfere in the Quality of Life. However, in a coronary event, individuals adopt changes in their lifestyle. Moreover, with coronary artery bypass grafting there is improvement of the daily limitations imposed by the disease. Thus, there is the possibility that patients understand the experienced situation and adapt to possible limits and changes to their lifestyle, as well as improving physical and emotional conditions.

Therefore, it is clear that the assessment of Quality of Life of patients is essential in clinical practice, since the nurse has an important role in implementing actions that minimize the modifiable risk factors and contribute to the improvement of Quality of Life of this population.

Conclusion

Coronary artery bypass grafting has a positive impact on the quality of life of patients, with improvement in all domains of the instruments applied for analysis.

Collaborations

Dal Boni ALM, Martinez JE, Saccomann ICRS declare that contributed to the conception and design, analysis and interpretation of data, drafting the article, critical revision of the important intellectual content and final approval of the version to be published.

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