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Original Article

QUALITY OF LIFE OF PATIENTS UNDERGOING SURGERY BY VIDEOLAPAROSCOPY FOR GERD TREATMENT

Qualidade de vida do paciente submetido à cirurgia videolaparoscópica para tratamento para doença do refluxo gastroesofágico

Francisco José Cavalcante **ANDRADE**[1,3], Eliete Rodrigues de **ALMEIDA**[3],Maria Teresa Botti Rodrigues dos **SANTOS**[3],Eurípedes **SOARES-FILHO**[2],João Batista **LOPES**[2],Roberto Cavalcante Veras e **SILVA**[2]

From [1]Hospital Alliance and Casamater, [2]Federal University of Piauí, Teresina, PI, and [3]Post-Graduate Program of University Cruzeiro do Sul, São Paulo, SP. Brazil.

ABSTRACT - ***Background*** - Gastroesophageal reflux disease is a chronic disease of high prevalence in Western countries, with negative effects on quality of life. Surgery is indicated for patients with intolerance to continuous medication, prolonged treatment or control, or in complicated forms of the disease. ***Aim*** - To evaluate the quality of life of patients undergoing surgery by videolaparoscopy for gastroesophageal reflux disease treatment. ***Methods*** - Sample comprised 43 patients of both genders (mean age = 51.4 years). For quality of life evaluation was made using the questionnaire Gastroesophageal Reflux Disease Health Related Quality of Life, translated and validated into Portuguese. Data were analyzed by Epi Info version 3.5.1, using Duncan test and Pearson's correlation coefficient, with 5% for null hypothesis ($p \leq 0.05$). ***Results*** - Over 50% of participants showed good quality of life (scores <5 of the questionnaire), more than 90% indicated satisfaction with their health. A significant positive correlation between most variables related to heartburn and the time after surgery was observed ($p \leq 0.05$). ***Conclusion*** - Patients presented good quality of life and high level of satisfaction with their postoperative condition.

HEADINGS - Gastroesophageal reflux disease. Quality of life. Surgery. Laparoscopy.

RESUMO - ***Racional*** – A doença do refluxo gastroesofágico é afecção crônica de elevada prevalência nos países ocidentais e com efeitos negativos sobre a qualidade de vida. O tratamento cirúrgico é indicado para pacientes que necessitam usar medicamentos ininterruptamente, intolerantes ao controle clínico prolongado e nas formas complicadas da doença. ***Objetivo*** - Avaliar a qualidade de vida de indivíduos submetidos à correção cirúrgica por videolaparoscopia, para tratamento da doença do refluxo gastroesofágico. ***Métodos*** - Foram avaliados 43 pacientes com idade média de 51,4 anos, de ambos os gêneros nos últimos dez anos, utilizando-se o questionário Escala de Qualidade de Vida Relacionada à Saúde para doença do refluxo gastroesofágico (1996), traduzido e validado para a língua portuguesa. Os dados foram analisados pelo programa estatístico Epi Info versão 3.5.1, com auxilio do teste de Duncan e do coeficiente de correlação de Pearson, fixando-se o valor de 5% para a hipótese de nulidade ($p \leq 0,05$). ***Resultados*** - Mais de 50% dos participantes demonstraram boa qualidade de vida (escores<5 do questionário); 95,3% indicaram satisfação com seu estado de saúde. Observou-se correlação positiva significativa entre a maioria das variáveis referentes à pirose e ao tempo após a operação ($p \leq 0,05$). ***Conclusão*** - Os pacientes apresentaram boa qualidade de vida e elevado grau de satisfação com sua condição pós-operatória.

DESCRITORES - Doença do refluxo gastroesofágico. Qualidade de vida. Cirurgia. Laparoscopia.

Correspondence:
Francisco José Cavalcante Andrade,
e-mail: fjcavalcante@hotmail.com

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INTRODUCTION

Gastroesophageal reflux disease (GERD) is one of the chronic conditions most frequent in medical practice, with high prevalence and morbidity, causing significant limitations in daily life with impaired quality of life (QOL)[1]. It is an issue of growing interest all over the world, proved by the large amount of papers in medical literature. However, there is controversy over various aspects, from the standpoint of diagnostic to therapeutic[20].

A meta-analysis of international studies demonstrated prevalence of 10 - 20% in Western countries and up to 5% in the Eastern world, when used as diagnostic criterion for the presence of GERD heartburn at least once a week in the past 12 months[8]. In Brazil, the prevalence is about 11.8% for heartburn once a week and 7.3% for heartburn more than that[19].

There is no strict criterion to define GERD, since the threshold between physiological and pathological reflux is ultimately arbitrary. Recent consensus (Montreal consensus) GERD was defined as "condition that develops when the reflux of stomach contents causes troublesome symptoms or complications"[29].

Therapeutic measures seek to correct the pathophysiological changes of the disease, improving motor function of the esophagus, elevating LES pressure, accelerating gastric emptying and minimizing potential harmful of the gastric contents with its neutralization or even suppressing aggression represented by the hydrochloric acid of the gastric juice. Therapeutic approach can be divided in behavioral and pharmacological measures, and implemented concurrently[20]. The difficulty of clinical treatment is not to control symptoms, but keep asymptomatic the patients over time[22].

With the advent of laparoscopic surgery, there was greater patient consent for surgical therapy. The lowest postoperative morbidity in this technique should not modify their indications, but this option became more attractive to the patients[10]. However, postoperative symptoms including dysphagia, difficulty on eructation, bloating and diarrhea may be present, causing anxiety and concern for patients and physicians[17].

Therefore, it must be considered the impact of operation on the QOL of patients submitted to it. Quality of life is a subject that has been widely debated in decades and with increasing interest on modern society. Traditionally it was concepted by social scientists, philosophers and politicians, but currently it is promoted also by physicians and researchers. The term QOL in health is linked to the impact of health status on individual's ability to live fully[12]. World Health Organization defined in 1995 quality of life as "the individual's perception of their position in life, in the context of culture and value systems in which they live and in relation to their goals, expectations, standards and concerns."

The changes in the paradigms of health care in recent decades, is placing the individual in a social being context, not just as a biological organism that must be repaired. Lead to a more humane care, raising the prospect for quality of life, taking into account the integrity of the human person[4].

Thus, QOL has become a concept increasingly valued and used in clinical research and has guided decisions of health professionals. A related quality of life (HRQOL) has been used to assess the impact of chronic diseases on daily life and also to evaluate patients with the same disease, but have different criteria to the same treatment[14].

The objective of the present study was to analyze the results of using the Gastroesophageal Reflux Disease Questionnaire Health Related Quality of Life (GERD-HRQL) to measure the HRQOL of patients undergoing laparoscopic surgical treatment for GERD.

METHODS

This study was approved by the Ethics and Research Comittee at Cruzeiro do Sul University (UNICSUL) under the number 159/2009. All participants agreed and signed the consent form.

Were attended 43 adults of both genders, undergoing operation by videolaparoscopy for treatment of GERD in Casamater Hospital in the city of Teresina, PI, Brazil in the last 10 years.

The inclusion criteria were: both gender over 18 years of age who underwent operation for the treatment of GERD in the last ten years and operated by the same surgical team using the Nissen-Rossetti fundoplication (360°).

Were excluded patients undergoing other operations after abdominal surgical treatment of GERD.

All were evaluated by using questionnaires with individual interviews in an appropriate environment. Questionnaires were: 1) Socio-Demographic Data (prepared especially for this study) and 2) GERD-HRQL in Portuguese (Quality of Life Scale Health Related to Gastroesophageal Reflux Disease - GERD-HRQL).

Data analysis and interpretation

Database and statistical analyzes were performed using Epi-Info version 3.5.1. Descriptive analysis used relative frequency (%) and the absolute (n) for categorical variables. Quantitative variables and scores of variables measuring the QOL

scale were expressed as mean, standard-deviation, minimum and maximum values.

To compare the mean of the variables, in relationship to age and postoperative time and to check significant linear relationship between the parameters of the GERD-HRQL questionnaire, was used the Pearson correlation coefficient. Value of 5% for the null hypothesis ($p \leq 0.05$) was considered.

RESULTS

The mean age of patients was 51.4 years, ranging from 23-81 years. Only one patient (2.3%) had no formal education, while 41.9% had university degree. Regarding ethnicity, according to IBGE criteria patient saying to what race he belongs to, 67.4% were whites and 32.6% of mixed race (Table 1).

TABLE 1 - Absolute and relative distribution, according to socio-demographic characteristics

Characteristics	Values
Age	
Average and variation in years ± SD	51,8 (23-81) ± 12,5 (DP)
Gender	**N (%)**
Female	21 (48,8)
Male	22 (51,2)
Education	**N (%)**
Without any	1 (2,3)
Fundamental	7 (16,3)
Medium	13 (30,2)
Superior	18 (41,9)
Incomplete higher education	4 (9,3)
Ethnicity	**N (%)**
White	29 (67,4)
Mixed	14 (32,6)
Black	-
Yellow	-
Marital status	**N (%)**
Single	8 (18,6)
Married	33 (76,7)
Widow/divorced	1 de cada (2,3 x 2)

The score GERD-HRQL questionnaire was calculated as the sum of the figures reported by patients, varying from 0 to 50 (0 to best answer and 50 the worst). Among the obtained results, or is observ predominance of low scores, where the minimum score (zero) was present in 16.3% of patients. It is also worth mentioning that more than half of the patients had scores below 5 and exhibited only a score of 18, maximum reached in this study (Figure 1).

The last question of the GERD-HRQL assessed the patient's perception about their current health status into six levels of satisfaction. The answers marked as very pleased and satisfied were, respectively, in 25 (58.1%) and 16 (37.2%). It was noted that most of the patients marked as very satisfied were concentrated between two and seven years after the operation (Figure 2).

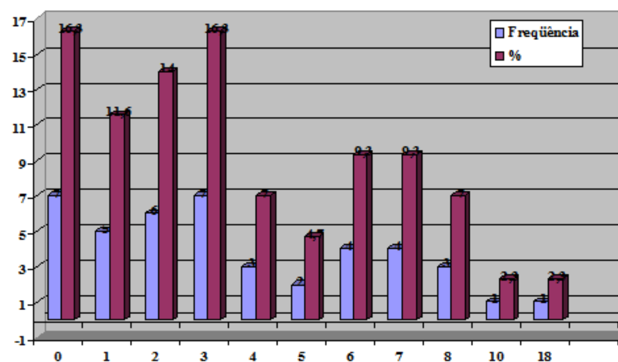

FIGURE 1 – Relative and absolute distribution, according to scores of quality of life

TABLE 2 - Parameters distribution according to age stratification

Parameters	Age group (years)				QL
	[23–38]	[38–53]	[53–68]	[68–83]	
Operation time (years)	32,00a	43,85b	59,42c	73,00d	9,2
How bad is the heartburn (score)	1,35b	0,00b	1,16b	6,03a	228,1
Heartburn when lying down (score)	0,00b	0,00b	1,05b	6,03a	241,8
Heartburn when standing (score)	1,35a	0,00a	1,05a	2,71a	279,5
Heartburn after meals (score)	1,35a	0,00a	0,77a	2,71a	313,1
Heartburn change what you eat (score)	0,00b	0,44b	0,39b	6,56a	262,6
Heartburn waking during sleep (score)	0,00a	0,00a	0,66a	0,00a	470,6
Difficulty in swallowing (score)	3,97a	2,46a	4,03a	2,71a	118,1
Pain on swallowing (score)	0,00a	1,25a	1,43a	3,32a	233,7
Flatulence or feeling of gases (score)	4,37a	4,73a	5,23a	2,71a	87,6
Medication use that affects daily life (score)	1,66a	0,88a	1,37a	1,91a	208,4
Score	9,78b	6,79b	10,57ab	16,55a	56,3

Means followed by the same letter in the row did not differ by Duncan test (p> 0.05)

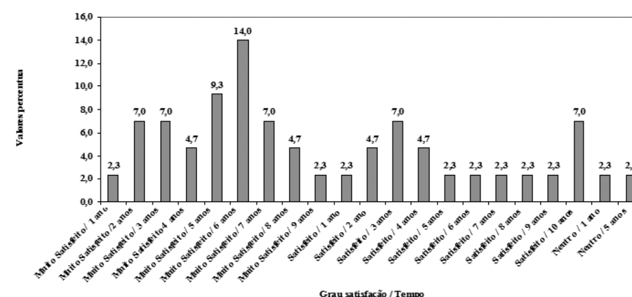

FIGURE 2 – Distribution according to satisfaction in time periods after the operation

TABLE 3 - Parameters distribution according to time after the operation

Parameters	Elapsed time after operation (years)					QL(%)
	[0,5–2,5]	[2,5–4,5]	[4,5–6,5]	[6,5–8,5]	[8,5-0,5]	
How bad is the heartburn (score)	0,250a	0,200a	0,385a	0,286a	0,400a	267,2
Heartburn when lying down (score)	0,250a	0,200a	0,231a	0,286a	0,200a	309,1
Heartburn when standing (score)	0,000a	0,200a	0,308a	0,143a	0,400a	294,4
Heartburn after meals (score)	0,000a	0,200a	0,307a	0,000a	0,400a	321,2
Heartburn change what you eat (score)	0,250a	0,100a	0,462a	0,000a	0,000a	360,5
Heartburn waking during sleep (score)	0,000a	0,000a	0,000a	0,143a	0,400a	468,3
Difficulty in swallowing (score)	0,750ab	1,100ab	1,385a	0,000c	0,200ab	110,1
Pain on swallowing (score)	0,143a	0,600a	0,615a	0,143a	0,143a	230,9
Flatulence or feeling gases (score)	1,375a	1,000a	1,307a	1,000a	1,200a	98,1
Medication use that affects daily life (score)	0,125a	0,100a	0,153a	0,857a	0,200a	211,5
Score	3,000a	3,700a	5,154a	2,174a	3,400a	93,4

Means followed by the same letter in the row did not differ by Duncan test (p> 0.05).

Table 4 presents the statistical analysis between variables and outcome - quality of life, using the Pearson correlation test.

DISCUSSION

Recent decades have contemplated an important moment in researches relating to the management of GERD, resulting increments of diagnosis and treatment. Relevant factor to be considered in this management is the growing acceptance that the QOL of patients is largely affected by the symptoms related to the disease, making important attention of patients in this aspect after surgey[6].

Despite the advent of proton pump inhibitors, some patients continue to experience persistent symptoms of GERD. Non-surgical alternative treatment for these patients are currently limited[18,20].

The present study showed scores of HRQOL of patients undergoing surgical treatment for GERD, using GERD-HRQL instrument. Some limitations should be highlighted, notably to the methodological peculiarities regarding the study design, not allowing to confront the past history and current QOL of each participant, due to the longitudinal feature of the study.

Lower GERD-HRQL total scores indicated good quality of life, suggesting that surgical treatment was effective. Due to the special design of this study, it is reasonable to say that the surgery improved the quality of life, as reported here on time data collection.

Changes in lifestyle imposed by the need to control symptoms, such as changes in eating habits, elevation of the head of the bed and an uncomfortable sleep, can affect the sense of physical well-being. These circumstances change social relations and affect psychological status, leading to negative impact on their quality of life. All these aspects of well-being can be improved by operation[6].

Patient intentions are to get rid of GERD symptoms and not acquire uncomfortable collateral effects. QOL will be improved by the disappearance of reflux symptom and absence of new symptoms, as dysphagia. In addition, to return to the normality in dietary habits. Though the operation can determine anatomical and functional improvements in the lower esophageal sphincter, it may not be satisfactory to control the symptoms of GERD, when

TABLE 4 - Pearson correlation of all variables (GERD-HRQL)

	Age	Time operation	How bad is the heartburn	Heartburn when lying down	Heartburn when standing	Heartburn after meals	Heartburn change what you eat	Heartburn waking during sleep	Difficulty in swallowing	Pain on swallowing	Flatulence or feeling gases	Medication use that affects daily life	Score
Age	-	-	-	-	-	-	-	-	-	-	-	-	-
Time	0,321	-	-	-	-	-	-	-	-	-	-	-	-
operation	0,321	1,002	-	-	-	-	-	-	-	-	-	-	-
How bad is the heartburn	0,442	0,762	0,761	-	-	-	-	-	-	-	-	-	-
Heartburn when lying down	0,21NS	0,902	0,901	0,572	-	-	-	-	-	-	-	-	-
Heartburn when standing	0,18NS	0,802	0,811	0,442	0,942	-	-	-	-	-	-	-	-
Heartburn after meals	0,391	0,451	0,451	0,532	0,24NS	0,27NS	-	-	-	-	-	-	-
Heartburn change what you eat	0,16NS	0,16NS	0,16NS	0,482	0,13NS	0,07NS	-0,07NS	-	-	-	-	-	-
Heartburn waking during sleep	0,01NS	0,22NS	-0,22NS	-0,311	0,16NS	-0,11NS	-0,27NS	-0,19NS	-	-	-	-	-
Difficulty in swallowing	0,25NV	0,09NS	0,09NS	0,14NS	0,10NS	0,12NS	0,22NS	0,09NS	0,381	-	-	-	-
Pain on swallowing	0,03NS	0,09NS	-0,09NS	-0,27NS	0,12NS	-0,06NS	0,01NS	-0,25NS	0,19NS	0,19NS	-	-	-
Flatulence or feeling gases	0,07NS	0,12NS	0,12NS	0,17NS	0,10NS	0,02NS	0,08NS	0,09NS	-0,12NS	0,23NS	0,26NS	-	-
Medication use that affects daily life	0,321	0,591	0,592	0,482	0,552	0,522	0,382	0,09NS	0,321	0,501	0,491	0,402	-
score													

evaluated on patients point of view.

In this group, age ranged from 23 to 81 years, mean 51.8 years, which was not different from literature data, varying from 39.6 to 59.7[5,19,21]. Regarding to gender, there was some disagreement with several studies in the literature, with higher prevalence in women and varying from 57 to 61.8% [19,21].In this sample, was found 48.8% of females, similar to Ciovica et al.[5], with 48.4%. GERD assumes no clear preference for gender, as has been demonstrated in the literature, despite the known association between GERD symptoms and pregnancy[8]. The differences may be attributed to the higher probability of diagnosis among female patients with higher levels of medical care. El-Serag and Sonnenberg[24] reported that the more severe forms of GERD characterized by erosive esophagitis and esophageal ulcers are more common among men.

With regard to education, there was a predominance of individuals with higher education (41.9%), low proportion of individuals with primary education (16.3%) and only one person without any (2.3%). These data are in common with a Brazilian population study conducted in Rio Grande do Sul, which demonstrated higher prevalence of GERD in the low educational level[21]. However, these results did not cause any surprise and could be explained by the fact that this study was done in a state capital and with private patients; so, the population included had better social position and schooling.

As mentioned, to evaluate the HRQOL of patients, was used the GERD-HRQL questionnaire, where the score were calculated by adding notes marked by patients. The majority (69.9%) had low scores (0-5) indicating effectiveness of the treatment in relation to QOL. In the literature, most studies makes comparison between QOL scores at pre and postoperative times, as well as checks with prolonged clinical treatment, indicating improvement after surgery. This modality is better than drug therapy when considering quality of life and patient satisfaction[5,6,15,27].

While this study did not confront the data pre and post treatment, so, is not allowed to say whether there was an improvement in the QOL of patients. The data indicate good quality of life in the act of questioning. Several authors have demonstrated clearly QOL improved after surgery, while admitting the persistence of some symptoms, such as fullness and abdominal distention, which in general are well tolerated by patients[2,7,26].

In relation to the ninth question of the questionnaire, swelling or feeling of gases, there is agreement with literature on the presence and good tolerance by patients.

The last question of the GERD-HRQL assessed the patient's perception about their current health status into six levels of satisfaction. Among the cases, 58.1% reported being very satisfied, 37.2% were satisfied and 4.7% reported the degree of satisfaction as neutral, no patient noted dissatisfation, very dissatisfied or incapacitated. Similarly Tucker et al.[27] reported 73.1% patients completely satisfied, 22.8% somewhat satisfied and only 5.3% were dissatisfied with the surgery.

When evaluated patients' responses in time, it was observed that most very satisfied were concentrated between two and seven years after the operation. These data are in accordance with Hamdy et al.[15] showing symptoms improvement satisfaction over time postoperatively.

Questions 1 to 6 of the GERD-HRQL were related to heartburn, typical symptom that negatively affects patients' QOL. In this study, the answers ranged from zero (no symptoms) to four (symptoms affect daily activities). When comparing the averages of these issues, depending on the time elapsed after surgery, they did not differ by Duncan test at 5% probability of differences between means.

Items 7 to 9 referred to the symptoms of dysphagia, odynophagia and meteorism, considered side effects of the procedure. In this series, these items were the main reason in raising the final scores, decreasing patient satisfaction. However, as mentioned previously, these symptoms are generally well tolerated by patients and show improvement over time after the operation as explained in the literature[2,15,26]. Difference was observed only in dysphagia, with a tendency to decrease on longer time.

Spechler et al.[25] compared open fundoplication and drug treatment, showed that ten years after the operation, 62% of patients were taking anti-reflux drugs regularly. However, 86% were satisfied with the results of the procedure.

Item 10 was about the use of medication. In this study, 79.1% of patients reported zero (no symptoms) to this question, 18.6% scored 1 (no bothering symptoms) and only one patient showed grade 3 (uncomfortable every day), revealing low need of medication and low impact on their QOL. Dallemagne et al.[7] reported that less than 10% of patients required use anti-reflux continuously ten years after surgery, close to what was found in the item 10.

Was observed significant positive correlation between most variables that were related to heartburn and the time after the operation. On the other hand there was a negative correlation, although not significant, between difficulty in swallowing and bloating with heartburn and elapsed time of operation, suggesting that better control of heartburn could result in higher postoperative side effects such as dysphagia, sensation of fullness and tendency to recurrence of heartburn over time.

The quality of life is important and should be analyzed to indicate treatment for GERD. Typically, people with it have poor QOL compared with healthy subjects, justifying satisfaction with the transaction, although some symptoms are still present, as reported by patients in this study and others already published.

The GERD-HRQL was easily understood by patients, based on scale of typical GERD symptoms. The questionnaire also featured items about flatulence, bloating and dysphagia, with possible side effects that could have postoperative negative impact on QOL. Interestingly, there were no questions about the lack of extra-esophageal manifestations (pharyngeal globus, halitosis, asthma, cough and hoarseness), which can affect the quality of life. Perhaps, the questionnaire could additionally ask for these symptoms, frequently found on patients symptoms on GERD.

The QOL instrument used here was made and validated by Velanovich[30] based on a scale of typical symptoms of GERD; was translated and validated in Portuguese by Pereira[22].

CONCLUSION

Patients in 10 years, had low scores on GERD-HRQL postoperatively, with good QOL. Postoperative dysphagia decreased with longer postoperative observation time. Older age group (68 to 83 years) had lower impact of surgical treatment on quality of life over the years. Regardless the GERD-HRQL score related by patients, there was a high degree of satisfaction in their postoperative condition.

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