

ASSESSMENT OF QUALITY OF LIFE AMONG ELDERLY PATIENTS WITH FEMORAL NECK FRACTURES SURGICALLY TREATED BY PARTIAL HIP ARTHROPLASTY

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SUMMARY

Thirty patients with ages ranging from 70 to 95 years, 24 (80%) females and six (20%) males with femoral neck bone fracture were assessed. They were submitted to partial hip arthroplasty between 2001 and 2003, in the following hospitals: Hospital Ipiranga SUS-SP and Mario Covas State Hospital- Santo André-SP. Partial arthroplasty was performed in unstable Garden III and Garden IV fractures, using the partial cemented Thompson's prosthesis. The SF-36 questionnaire on health-related quality of life was applied. Patients were interviewed at the eleventh month after surgery, aiming to evaluate quality of life in elderly patients who had femoral neck fractures and surgically treated with partial hip pro-

thesis. Regarding their physical health, patients presented low scores related to functional capacity and high scores regarding physical aspects, pain and overall health status. Mental health was shown to be moderate regarding vitality and high in terms of social and emotional aspects, as well as mental health itself. We may conclude that Thompson's partial arthroplasty, after femoral neck fracture in patients over the age of 80 years, followed-up for 11 months after surgery, enables a good quality of life.

Keywords: *Quality of life; Aged; Femoral neck fractures; Arthroplasty; replacement, hip.*

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INTRODUCTION

Medical science, in the past few years, has presented a convergence towards studies addressing quality of life.

With time, some typical diseases of age groups emerge and, among the ones most affecting elderly individuals, the femoral neck fracture can be mentioned⁽¹⁾.

The mean age for femoral neck fractures is 75-80 years for women, being a little lower among men: 70-75 years.

Surgical treatment reduces the incidences of morbidity and mortality resultant from femoral neck fractures. In stable fractures, many times, fixation preserving femoral head is possible, but, in unstable ones, the use of total or partial hip arthroplasty may be necessary.

There are a number of studies correlating outcomes of femoral neck fracture treatment to the surgical technique employed⁽²⁻⁹⁾ but descriptions addressing postoperative quality of life of patients submitted to surgical treatment are scarce.

Many indexes or tools have been used in order to evaluate quality of life of patients with the most variable diseases. These tools may be divided into two groups: generic and specific.

In our literature review, we couldn't find publications addressing quality of life of patients with femoral neck fractures submitted to Thompson's prosthesis insertion.

This study is aimed to assess the quality of life of elderly

patients who experienced femoral neck fractures and surgically treated with partial hip prosthesis.

MATERIALS AND METHODS

Material

Thirty patients were assessed, with ages ranging from 70 to 95 years (average: 83 years), being 24 women (80%) and six men (20%), who experienced femoral neck fractures and operated on for partial hip arthroplasty between 2001 and 2003, at Hospital Ipiranga SUS-SP and Hospital Estadual Mário Covas, in Santo André-SP.

Method

Concerning the surgical technique, the patients were positioned at lateral decubitus.

A Kocher and Langembeck's⁽¹⁰⁾ access port is made with a modification on incision length intended to reduce incision size.

After femoral head resection, the whole femoral neck is also resectioned with appropriate instruments.

The Thompson's prosthesis is cemented.

Its stability is tested especially with the lower limb in extension and external rotation, and flexion and internal rotation. Lower limb shortening presence or not is also checked for.

For osteoporosis analysis, the Singh's⁽¹¹⁾ osteoporosis X-ray index was applied.

Study conducted at Hospital Estadual Mário Covas, ABC Medical School – Santo André/SP and Hospital Ipiranga – São Paulo/SP.

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For classifying femoral neck fracture, the classification described by Garden⁽¹²⁾ was used.

For assessing quality of life, the quality of life assessment generic questionnaire SF-36 was applied 11 months post-operatively. This questionnaire is composed by 36 items comprised in 8 components: functional capacity, physical aspects, pain, overall health status, vitality, social aspects, emotional aspects and mental health. Its translation into Portuguese and validation to Brazil were made by Ciconelli⁽¹³⁾. Concerning statistic methodology, SF-36 questionnaire reliability was grounded on Cronbach's alpha coefficient. Study population characterization was made by descriptive analysis (means, standard deviations, minimum values, maximum values, and ratios). The Kolmogorov-Smirnov⁽¹⁴⁾ test was performed to check if the continuous quantitative variables (questionnaire components) showed a normal distribution. This information was used to determine which kind of statistical test was appropriate to each variable.

DISCUSSION

In 1952, Thompson⁽⁹⁾ introduced a partial intramedullary hip prosthesis, which, at that time, was made of vitallium, recommending its use in cases of femoral neck fracture with bone re-absorption. The Thompson's prosthesis⁽⁹⁾ is a partial hip prosthesis with neck, various head sizes and curved femoral shaft. In our case series, it was made of stainless steel.

In this study, partial hip arthroplasties in unstable fractures (Garden III and IV) were performed in patients with advanced age and low levels of physical activity, 83 year-old in average. Faraj and Branfoot⁽⁴⁾, in 1999, found in studied patients an average of 83.5 years, and Calder et al.⁽²⁾, like our study, reported a mean age above 80 years when they assessed patients with femoral neck fractures and above the eighth decade of life submitted to bipolar prosthesis and Thompson's prosthesis, both characterized as partial prosthesis.

Eighty percent of the patients we operated are women, meaning that there is a prevalence of female gender compared to the male gender concerning femoral neck fractures, which is consistent with the results of studies conducted by Alffram⁽¹⁾.

In advanced-aged patients presenting with osteoporosis fracture union is more difficult, therefore, we chose in our study to replace femoral head and neck, that is, by partial hip arthroplasty using the Thompson's prosthesis, allowing for early ambulation and return to daily activities for a better quality of life. In our material, we did not find complications, as mentioned by Davison⁽³⁾, requiring surgical re-intervention.

One of the complications of the hip partial arthroplasty is acetabular protrusion. When assessing patients above the eighth decade of life submitted to bipolar and Thompson's prostheses in their the second postoperative year, Calder et al.⁽²⁾ found no statistical difference concerning complication in both groups; nevertheless, they reported three cases of acetabular erosion in those submitted to Thompson's prosthesis and no case in those submitted to bipolar prosthesis, not requiring review surgery in acetabular erosion cases. In our case series, no acetabular erosion cases were found, probably because of the short postoperative time (11 months) and to the low level of activities performed by patients in an older age group.

The partial arthroplasty procedure with Thompson's prosthesis is fast and presents low morbidity, eliminating some bone union complications such as avascular necrosis and pseudo-arthrosis, and also allows for early mobilization and ambulation.

In this study, we found that all the 30 patients who experienced femoral neck fracture presented with osteoporosis, according to Singh's classification⁽¹¹⁾, grade I (10%), II (36.67%) and III (53.33%), with prevalence of grade III. The evidence of osteoporosis in all patients reinforces the idea that arthroplasty in that advanced age group is a better option for a procedure than surgical fixation due to the higher chance for synthesis failure that may occur. It also serves as an alert that people in this advanced age group require special care concerning osteoporosis prophylaxis, which, in our case series, was not performed.

There are controversies among authors regarding the use of acrylic cement at femoral channel to perform hemiarthroplasty. Charney⁽¹⁵⁾ introduced the use of acrylic cement for immediate stabilization of a prosthetic hemiarthroplasty at the femoral medullar channel. Faraj and Branfoot⁽⁴⁾ assessed patients submitted to Thompson's partial cemented and non cemented arthroplasty, and found that both groups showed a good progression. In our study, all partial prostheses were cemented.

The SF-36, used in this study, is a worldwide recognized questionnaire addressing quality of life. It is a generic instrument for assessing quality of life, which has been created to be a simple, self-administered and user-friendly tool, providing scores to different components at a maximum score of 100, without, however, indicating any optimal index for each component analyzed over patients. In our study, no patient found the SF-36 questionnaire difficult to understand.

Concerning the SF-36, the functional capacity assessment scale evaluates both the presence and the magnitude of restraints related to physical capacity. In the assessment scales related to physical and emotional aspects, not only the limitations in terms of kind and amount of work are addressed, but also how much these limitations make difficult to patients to perform their jobs and daily activities. In this study, from a physical health point of view, we found a low functional capacity of the patients, which was, in average, 31.7, but, in our opinion, functional capacity of the elderly is usually low, especially above the age of 80. Concerning physical aspects, patients presented good scores, in an average of 79.2, and, although a low functional capacity as measured by us, the patients reported being happy with physical aspects, which justifies, then, to perform partial arthroplasty for femoral neck fractures. Painful symptoms were present in few cases during this time interval of 11 months postoperatively, in an average of 96.9. The scarce presence of pain is important for a good postoperative quality of life. The overall health status has also shown good scores, in an average of 77.6, which evidences that hip partial arthroplasty procedure not only contributes to increase the chance of survival in patients with femoral neck fractures, but also provides a good quality of life, although we have made this analysis in a short time interval, that is, eleven months post-operatively. Regarded as a sub-item of mental health at the SF-36, vitality has shown to be satisfactory, with an average of 66.2, although this is not a high value for such an advanced age group. Under the 'social aspects' item, our patients were shown to be well, with an average of 93.8,

reflecting that hip partial arthroplasty post femoral neck fracture caused almost no interference on social aspects. Concerning emotional aspects, the patients showed good scores, with 84.4 in average, reflecting that depression or anxiety cases rarely occurred. In terms of mental health specifically, they presented good scores, with an average of 77.2, which is important because this directly interferes on patient's self-esteem. This study shows that, in what concerns to quality of life, patients submitted to Thompson's partial arthroplasty, assessed with the SF-36 questionnaire on the eleventh postoperative month, presented, in terms of physical health, low functional capacity, but good scores in questions related to physical aspects, pain and overall health status. In what concerns to mental health, the item 'vitality' had a medium score, and for social, emotional and mental health aspects, a "good" score.

The patients presented with a good emotional status, despite of the low functional capacity, probably because elderly individuals present low levels of daily activities, even previously to the fracture. Another aspect to be observed is that the result of the SF 36 did not present changes neither with the higher age, nor with gender difference.

As shown on Table 1, the patients presented with good physical and mental health, although functional capacity was low, probably because of the low levels of physical activity previously to the fracture resulting from an advanced age, although we have not applied the SF-36 questionnaire previously to the fracture.

On Table 1, when components were descriptively assessed, we found that only functional capacity had a score below 50 (in this case, 31.7) and that the other presented scores above 65, which points out to patients' good quality of life. On Table 2, results evidence that none of the components presented a distinct mean value between genders or with age increase, since all of them reached a descriptive value above 5%.

The partial hip arthroplasty procedure is well indicated to patients with unstable femoral neck fracture and with ages above eighty years due to the low life expectancy for these patients. We found few reports addressing quality of life in patients with femoral neck fractures, therefore, we regard our study as relevant.

The fact that the increased age and gender difference do not interfere on SF-36 scores evidences that the patients were happy under a physical and psychological point of view, perhaps because of the low levels of physical activity previously to the fracture. In our paper, we applied the SF-36 only at the postoperative period, because, as we assessed patients with fractures, we were not able to analyze the SF-

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Components	Average	Standard Deviation	Minimum value	Maximum value
Physical health				
Functional capacity	31.7	20.4	0	70
Physical aspects	79.2	33.5	0	100
Pain	96.9	7.3	72	100
Overall health status	77.6	20.04	10	97
Mental health				
Vitality	66.2	24.3	0	100
Social aspects	93.8	13.4	50	100
Emotional aspects	84.4	35.8	0	100
Mental health	77.2	24.5	8	100

Table 1 – Scores for each SF-36 questionnaire component

Components	Descriptive level (p-value)	
	Age	Gender
Physical Health		
Functional capacity	0.107	0.512
Physical aspects*	0.770	0.196
Pain	0.361	0.254
Overall health status*	0.904	0.414
Mental health		
Vitality	0.300	0.755
Social aspects	0.322	0.405
Emotional aspects	0.631	0.241
Mental health	0.089	0.346

* These three components use non-parametric techniques.

Table 2 – Descriptive level of the analysis for each component assessing variables Gender and Age

36 electively preoperatively. We found, in our case series, that the SF-36 enabled to assess patients' physical and mental health after hip partial arthroplasty. We found that the patients we studied showed good physical and mental health, despite of the low functional capacity, probably because of the low levels of physical activities performed by patients previously to the fracture. Social aspects showed a high score at the SF-36, reaching to a value of 93.8, which evidences the presence of family's sympathy during post-fracture period, meaning that the patients, in general, have not been left alone by the family during postoperative time, just the opposite, showing support, and proving that support and sympathy are very important for this kind of patient to recover.

We should not only be concerned with surgery, this is not a technical procedure alone, but family and physician care is also necessary for a good quality of life for these patients.

CONCLUSION

Thompson's partial arthroplasty after femoral neck fracture in patients above the age of 80 being assessed on the eleventh month postoperatively allows for a good quality of life.

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