

MUSCULOSKELETAL PAIN IN LOWER LIMBS IN OBESE PATIENTS BEFORE AND AFTER BARIATRIC SURGERY

Dor musculoesquelética em membros inferiores de pacientes obesos antes e depois da cirurgia bariátrica

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ABSTRACT - Background - The World Health Organization estimates that in 2015 there will be approximately 2.3 billion overweight adults and more than 700 million obese individuals worldwide. Excess weight can lead to several complications, such degenerative diseases. **Aim** - To estimate the frequency and local of musculoskeletal pain in the lower limbs before and after bariatric surgery. **Methods** - Cross-sectional descriptive study consisting of 22 obese individuals who filled in questionnaires before and six months after undergoing bariatric surgery. Data were shown through a descriptive analysis. The statistical analysis was performed with significance level at 5%. **Results** - Musculoskeletal pain in the lower limbs was placed preoperatively in 87.5% in the ankle and foot, knee 80% and 91.7% in the hip. Postoperative pain remained present in 12.5% in the ankle and foot, knee 20% and 8.3% in the hip, with statistical significance ($p < 0.001$). **Conclusion** - Obese people who underwent bariatric surgery experienced a marked reduction in both frequency and intensity of musculoskeletal pain located in order in the hip, ankle and foot, and knee.

HEADINGS - Musculoskeletal pain. Lower extremity. Bariatric surgery.

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DESCRIPTORES - Dor musculoesquelética.
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RESUMO – Racional - A Organização Mundial da Saúde calcula que em 2015 haverá aproximadamente 2,3 bilhões de adultos com sobrepeso e mais de 700 milhões com obesidade no mundo. O excesso de peso pode levar a inúmeras complicações, dentre elas as doenças articulares degenerativas. **Objetivo** - Estimar a frequência e local da dor musculoesquelética em membros inferiores antes e depois da cirurgia bariátrica. **Método** - Estudo descritivo de corte transversal, composto por 22 indivíduos obesos que preencheram questionários antes e seis meses depois de submetidos à cirurgia bariátrica. Os dados foram expressos através de uma análise descritiva e avaliados estatisticamente com nível de significância de 5%. **Resultados** - A dor foi referida pelos pacientes no pré-operatório em 87,5% no tornozelo e pé, 80% em joelho e 91,7% no quadril. No pós-operatório ela diminuiu para 12,5% no tornozelo e pé, 20% no joelho e 8,3% no quadril atingindo significância estatística ($p < 0,001$). **Conclusão** - Indivíduos obesos submetidos à cirurgia bariátrica apresentaram acentuada redução tanto na frequência quanto na intensidade das dores musculoesqueléticas localizadas em ordem no quadril, tornozelo e pé e joelho.

INTRODUCTION

The World Health Organization⁹ calculates that in 2015 will be about 2.3 billion of adults with overweight and more of 700 million with obesity worldwide. Considered chronic disease, more prevalence in developed countries, reaches men and women of all ethnicities and age, reduces the quality of life and has high rates of morbidity and mortality.

The weight excess affects practically all the body with numerous complications, among them, the joint degenerative diseases⁴. The obesity and aging of cartilage cause loss of agility and has as result decrease of function of articulation^{11,14}, more frequent pain and secondary premature injuries of cartilage.

The pain is defined as "sensory and emotional unpleasant experience associated to real damage (International Association of Study of Pain - IASP) and represents the main cause of inability to work and quality of life¹⁷. Brazil don't have official data on the social costs of pain. Despite the constant increase of cases of obesity and articular injuries related to it, few papers in literature are in connection to the pain level and functional commitment associate to obesity.

The objective of the present study was to estimate the frequency and local of musculoskeletal pain in lower limbs before and after of bariatric surgery, and check if occurs decrease in its frequency by reduction of overweight.

METHOD

This is a descriptive transverse study accomplished in Salvador, BA, Brazil and was approved by the Ethics Committee of Salvador University with protocol number 04.10.88. All the participants signed the free and informed consent term - 196/96 Resolution of the National Committee of Ethics involving human beings.

Were selected individuals of both sexes, candidates to bariatric surgery with good level of understanding and cooperation. Were excluded the individuals with fracture of lower limbs, those with immunological (rheumatic) and neurological diseases and the ones using wheelchair.

The data were collected on period of October of 2009 to October of 2010, consisting of initial interview and application of Structured Nordic of Musculoskeletal Modified Symptoms Questionnaire, Lequesne Questionnaire and Corporal Map associate to Visual Analog Scale (EVA). This last allows the exact pain location associated to its intensity painting on corporal map.

After six months of the operation - when occurs the greater weight loss - the patients were invited to return to interview and to fill questionnaires, Nordic Modified and Lequesne. When the last one had any punctuation different from zero, they continued filling Corporal Map and EVA, to measure the intensity and if the pain was previous or recent. On Nordic was considered only the question evaluating the last seven days. The other two questions, considering the occurrence of pain or discomfort in lower limbs and if the pain interfered with professional activity, were discharged of the study to avoid the interference of time between six and 12 months.

The socio-demographic variables evaluated were gender, education, age and race. The level of education was categorized in first, second and third degrees. The clinical variables were weight (Kg) age and Mass Body Index (BMI). The musculoskeletal

location were hip, knee, ankle and foot.

The data bank was created on Excel 2003 and analyzed by R software (Version 2.11.1 eliminating possible errors or inconsistency. Was made descriptive analysis (absolute frequency / relative, median, 1^o. and 3^o. quartiles) aiming to identify the general and specific characteristics of the population. To verify of existence of significant differences before and after the intervention was utilized the nonparametric test of Wilcoxon in paired samples and quantitative variables, and the test of McNemar to the nominal dichotomous variables. The level of significance was of 5%.

RESULTS

The data included 23 patients that attended the inclusion criteria. One patient was removed due to the impossibility of being operated in a period possible to realize the two interviews. The other 22 performed the evaluation pre and postoperatively. Were 18 women and four men with median BMI of 40.50 kg/m² (q1= 35,75 and q3= 43) (Table 1).

TABLE 1 - Median of questionnaires used to assess pain and discomfort in members lower of patients obese, before and after of surgery bariatric

Variables	n=22	%
Gender		
Female	18	82
Male	4	18
Total	22	100
Schooling		
Grade 1	1	4,5
Grade 2	10	45,5
3rd Degree	11	50
Total	22	100
Age		
20-29 years	7	31,8
30-39 years	8	36,4
40-49 years	6	27,3
> 50 years	1	4,5
Total	22	100
Race *		
Black	6	27,3
Brown	9	40,9
White	7	31,8
Total	22	100

* Social Indicators 2010, released by the Brazilian Institute of Geography and Statistics (IBGE).

In 100% of patients the type of operation was Fobi- Capella¹⁵.

The patients were evaluated before and six months after the surgical procedure and happened important reduction in intensity of pain, considering $p < 0.05$, both on Lequesne - median value before = 13 (q1=10,38 and q3=14,50) and after = 0 (q1=0 e q3=2) and on EVA - postoperative median value

of = 0 to hip ($q1=0$ e $q3=1,25$), knee and ankle ($q1$ e $q3=0$).

The question related to pain in last seven days - Nordic Modified Questionnaire - demonstrated that on preoperative the frequency of musculoskeletal pain reached 63.6% on ankle and foot, 45.5% in knee and 54.5% in hip. On postoperative it remained present in 9.1% on ankle and foot, 9.1% on knee and 4.5% on hip (Figure 1). It can be said that the improvement of symptom was 87.5% on ankle and foot, 80% in knee and 91.7% in hip. On postoperative the pain remained present 12.5% on ankle and foot, 20% on knee and 8.3% on hip. The decrease of number of patients that had pain on postoperative time was significant with $p<0.001$ in evaluation of hip, $p<0.008$ on knee and $p<0.002$ on ankle and foot (Figure 2). Among patients maintaining pain or discomfort six months after only one was very severe (Lequesne Questionnaire) on left foot.

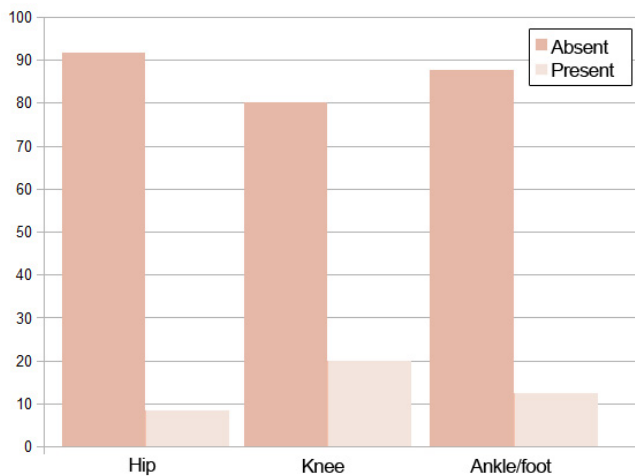


FIGURE 1 - Frequency of pain musculoskeletal by segment corporal before and after of surgery bariatric

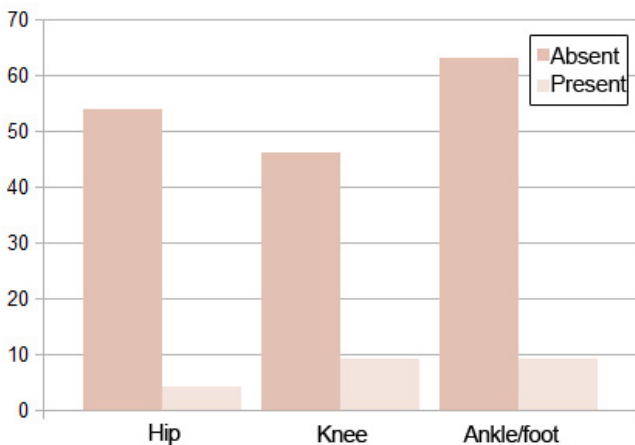


FIGURE 2 - Result postsurgical only of patients that had complaint of pain or discomfort in members lower before of surgery bariatric. (Nordic Modified)

DISCUSSION

The frequency of musculoskeletal pain in lower limbs decreases in obese submitted to bariatric surgery as identified on present study. The operation held in all the patients was the Fobi-Capella technique, characterized mainly by restriction to food intake¹⁵.

The relationship of bariatric surgery with the relief of musculoskeletal pain in the lower limbs is in connection with the decrease in joint overload^{6,11,13,14}. The low back pain is the more prevalent^{13,14}. Soccol et al.¹⁴, assessed the prevalence of arthralgia in obese subjects before and in the late postoperative period of bariatric surgery, using the test of six-minute walk. The present study used static evaluations, in which the subjective perception that the hip joint had the highest rate of pain reduction on postoperative follow-up, probably was because the weight loss permitted joint to suffer less in biomechanical compensations to maintain posture and walking. The smaller reduction of knee pain, can be attributed to variables such as the type of activity, age, race and even topographic factors that can affect the results on comparative studies. Despite this difference, it is clear the need to continue looking for parameters to estimate which joint is more affected by musculoskeletal pain in the lower limbs.

Indeed, the decrease in weight on postoperative time is associated to lower incidence of musculoskeletal pain in lower limbs and improvement of functional capacity^{11,16}.

Was identified in this study a population with high index of musculoskeletal pain in lower limbs, but not assisted by interdisciplinary and multiprofessional team. Therefore, it is necessary that professionals of health, including the physiotherapist, be aware with the potential complains of obesity, working together on the control of the different aspects of musculoskeletal pain and its functional limitations.

CONCLUSION

Obese people who underwent bariatric surgery experienced a marked reduction in both frequency and intensity of musculoskeletal pain located in order in the hip, ankle and foot, and knee.

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