OCCURRENCE OF PAIN AND MUSCLE WEAKNESS IN PATIENTS AFTER LOWER LIMB TRAUMA IN A HOSPITAL IN NORTH-CENTRAL GOIÁS

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ABSTRACT

Postoperative pain is common and can delay recovery, impacting on quality of life. Correct identification is crucial to avoid complications such as chronic pain and disability. Early mobilization helps preserve muscle strength (MS), but inadequate pain management can prolong rehabilitation. Therefore, the aim of this study was to analyze the occurrence of pain and its association with muscle weakness in volunteers in the immediate postoperative period (PO) of lower limbs (LL) in a referral hospital in north central Goiás. This is a cross-sectional study that investigated the relationship between pain intensity and muscle weakness, using the Visual Analog Scale (VAS) and the Medical Research Council (MRC) Muscle Strength Assessment Scale, respectively, in patients after lower limb surgery in a hospital in north central Goiás. A total of 92 volunteers were surveyed, with a mean age of 39.18 (+11.28) years, 68.5% of whom were male and 31.5% female. When stratified, the occurrence of pain was 59.8% mild, 32.6% moderate and 7.6% severe. The analysis revealed that 46.9% of the patients had significant weakness in the lower limbs. Although the mean age was higher in the group with weakness, this difference was not significant (p = 0.142), indicating that factors other than age may influence muscle weakness in the postoperative period after trauma to the lower limbs. The high

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prevalence of muscle weakness has important clinical implications, suggesting the need for future studies to explore other contributing factors.

Keywords: Postoperative pain; Muscle strength; Pain measurement; Rehabilitation.

INTRODUCTION

Postoperative pain is a common inflammatory response to surgery and the healing process, affecting around 80% of patients, 70% of whom reported moderate or severe pain, which can cause delayed recovery, difficulties in daily activities and psychological problems (LIN et al., 2019). Proper identification of pain is essential for accurate diagnosis and prevention of complications, such as chronic pain and physical disability (LANFREDINI; CIPRIANI, 2023; CASTILLO et al., 2017).

Early mobilization in the postoperative period is essential to preserve PF and avoid complications (THIELO; QUINTANA; RABUSKE, 2021), since inadequate management can prolong rehabilitation and worsen symptoms (KORTLEVER et al., 2020).

FM, hip mobility and biomechanical behavior are important factors to consider in the development of lower limb injuries (FERRAZ et al., 2020). Szulc (2020) adds that fractures result in a significant loss of FM and physical performance, more pronounced than that caused by ageing, and that recovery depends on the treatment and rehabilitation adopted.

Reduced FM has been associated with pain intensity (HENRIKSEN *et al*., 2011). Therefore, the aim of this study was to analyze the occurrence of pain and its association with muscle weakness in volunteers in the immediate postoperative period in the lower limbs at a referral hospital in north central Goiás.

METHODOLOGY

This is a cross-sectional study, with quantitative data analysis, carried out with the approval of the Research Ethics Committee of the Evangelical University of Goiás (No. 6.970.562), on volunteers in the immediate postoperative period to assess MS and pain levels in a reference orthopaedic hospital in the north-central region of Goiás.

The study included volunteers of both sexes, aged between 18 and 60 years, who agreed to take part by signing the Informed Consent Form (ICF), volunteers with

medical records, admitted to and treated at the hospital; and in the post-procedural period of surgery on the lower limbs due to fractures or injuries ligaments. However, the following were excluded: volunteers with a low level of consciousness or unable to answer and express themselves during the questioning and scales, those with polytrauma or multiple injuries, and participants who chose not to answer the questionnaires, answered incompletely, or did not wish to take part in the muscle strength test.

For data collection, volunteers were approached at their bedsides, with prior authorization from their medical team. Manual muscle tests were used to grade FM, varying in degrees from 0 to 5, according to the maximum strength expected for a given muscle. The grades were as follows: 0 = No contraction, 1 = Trace contraction, 2 = Active movement, with gravity eliminated, 3 = Active movement against gravity, 4 = Active movement against gravity and resistance and 5 = Normal power (KIPER *et al.*, 2021). The Visual Analog Scale (VAS), commonly used in clinical and scientific research, was used to assess pain intensity (FERRER-PEÑA *et al.*, 2018, ÅSTRÖM *et al.*, 2023).

For statistical analysis of the data, descriptive analysis was used with relative and absolute frequency and the independent T-test, comparing means of two groups, based on total muscle strength.

RESULTS

The study involved 92 volunteers, with a mean age of 39.18 (+11.28) years, 68.5% of whom were male and 31.5% female. It was observed that 46.9% of the individuals assessed had lower limb weakness, based on the total lower limb strength score, according to the Medical Research Council (MRC), where a score of 30 indicates normal strength in the lower limbs and muscle weakness if the score is ≤ 24.

The participants were divided into two groups based on the FM score: one group with FM ≥ 25, considered to have no muscle weakness, and the other with FM < 25, considered to have muscle weakness. The mean age was 41.23 (±10.34) years for the group with weakness and 37.69 (±11.92) years for the group without

weakness. Despite the higher mean age in the group with weakness, the difference between the groups was not statistically significant (p= 0.142).

When comparing the mean VAS pain score with FM, it was observed that individuals with muscle weakness had a mean VAS pain score of 1.513, representing 42.4% of cases. On the other hand, 57.6% of individuals who did not have muscle weakness had an average pain score of 1.453. However, there was no significant difference between the groups (p= 0.658). Since strategies to maximize health should focus on improving or maintaining muscle strength and power (FYFE; HAMILTON; DALY, 2021).

CONCLUSION

The findings highlight the importance of considering muscle strength as a relevant factor in postoperative rehabilitation, given that a considerable proportion of the individuals studied had weakness in the lower limbs, although pain showed no significant difference between the groups. Future studies could explore these additional factors and their interaction with muscle strength.

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