

OCCURRENCE OF PAIN AND MUSCLE WEAKNESS IN POSTOPERATIVE PATIENTS WITH LOWER LIMB TRAUMA IN A HOSPITAL IN NORTH-CENTRAL GOIÂNIA

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ABSTRACT

Postoperative pain is common and can delay recovery, impacting 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. Thus, this study aimed to analyze the occurrence of pain and its association with muscle weakness in volunteers in the immediate postoperative period (PP) of lower limbs (LL) at 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 Rating Scale, respectively, in postoperative patients with LLT in a hospital in north-central Goiás. A total of 92 volunteers were surveyed, with a mean age of 39.18 (+11.28) years, of whom 68.5% 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 patients had significant weakness in the lower limbs. Although the average 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 of lower limb trauma. The high 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

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Postoperative pain is a common inflammatory response to surgery and the healing process, affecting about 80% of patients, of whom 70% reported moderate or severe pain, which can cause delayed recovery, difficulties in daily activities, and psychological problems (LIN et al., 2019). Proper pain identification 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 FM and avoid complications (THIELO; QUINTANA; RABUSKE, 2021), since inadequate management can prolong rehabilitation and worsen symptoms (KORTLEVER et al., 2020).

MS, 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 significant loss of MS and physical performance, more pronounced than that caused by aging, and that recovery depends on the treatment and rehabilitation adopted.

Reduced MS has been associated with pain intensity (HENRIKSEN *et al.*, 2011). Thus, this study aimed 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.

METHOD

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), in volunteers in the immediate postoperative period to assess MS and pain levels in a referral orthopedic hospital in the central-northern region of Goiás.

Volunteers of both sexes, aged between 18 and 60 years, who agreed to participate by signing the Free and Informed Consent Form (FIFC), volunteers with medical records, hospitalized and treated at the hospital, and in post-surgical procedures on the lower limbs due to fractures or ligament injuries were included. However, the following were excluded: volunteers with low levels of consciousness or unable to respond and express themselves during questioning and scales, those with

multiple trauma or injuries, and participants who chose not to answer the questionnaires, answered incompletely, or did not wish to participate 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, ranging from 0 to 5, according to the maximum strength expected for a given muscle. The classifications 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). To assess pain intensity, the Visual Analog Scale (VAS) was used, commonly used in clinical and scientific research (FERRER-PEÑA *et al.*, 2018, ÅSTRÖM *et al.*, 2023).

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

RESULTS

The study was conducted with 92 volunteers, with a mean age of 39.18 (+11.28) years, of whom 68.5% were male and 31.5% female. It was observed that 46.9% of the individuals evaluated presented weakness in the lower limbs, 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 is indicated by a score ≤ 24 .

Participants were divided into two groups based on the FM score: one group with $MS \geq 25$, considered without muscle weakness, and another with $MS < 25$, considered with 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 average pain score on the VAS with the MS, it was observed that individuals with muscle weakness had an average pain score of 1.513 on the VAS, representing 42.4% of cases. On the other hand, 57.6% of individuals

who did not present 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 present weakness in the lower limbs, although pain did not show a significant difference between the groups. Future studies could explore these additional factors and their interaction with muscle strength.

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