

## QUALITATIVE AND QUANTITATIVE ASPECTS OF PAIN IN LATERAL POSTERIOR THORACOTOMY PATIENTS<sup>1</sup>

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*Descriptive study that proposed to compare the qualitative and quantitative behavior of the pain in lateral posterior thoracotomy patients. The sample was consisted of 18 individuals with an average age of 44 years. The instruments used were physiotherapy evaluation form, numerical pain scale and McGill questionnaire for pain. The pain on the numerical pain scale was considered moderate(5) for both sexes. The descriptors of the McGill questionnaire chosen by the patients with higher frequency were: in the sensorial component, beat4, pointed1, shock2, final and pull2; in the affective component, tired1, bored1, punishald1 and miserable1 and in the evaluative component was flat. The characteristics of pain in the sensorial group were more evidents on male group. No significant statistical differences were observed between quantitative answers concerning pain between the men and women. On the qualitative aspects, was observed an predominancy of the same descriptors of pain in affective component for both sexes. Pain intensity was categorized as moderate. No significant statistical difference were observed between the pain on the post-operative lateral posterior thoracotomy. These data demonstrate a necessity for an analysis with a larger study group.*

**DESCRIPTORS:** thoracotomy; pain measurement

## ASPECTOS CUALITATIVO Y CUANTITATIVO DEL DOLOR DE PACIENTES SOMETIDOS A LA TORACOTOMIA POSTERO-LATERAL

*Estudio descriptivo que ha determinado comparar el comportamiento cualitativo y cuantitativo del dolor en pacientes sometidos a la Toracotomía Postero Lateral(TPL). La muestra fue constituida por 18 (dieciocho) individuos, siendo 10 (diez) hombres y 8 (ocho) mujeres con edad media de 44 años. Como instrumento se utilizo la ficha de evaluacion fisioterapeutica, escala numerica moderada(5) para ambos los sexos. Los descriptores de los cuestionarios para dolor McGill escogidos con mayor frecuencia por los pacientes fueron: en el componente sensorial pungente4, puntada1, choque2, fina1, tiran2; en el componente afectivo, cansacial1, mareante1, castigante1 y miserable1 y en el componente evaluativo fue pesada1. Las características del dolor en el grupo sensorial fueron mais evidentes en el grupo masculino. No fueron observadas diferencias estadísticas significativas entre las respuestas cuantitativas del dolor de hombres y mujeres. En relacion al aspecto cualitativo fue observado una predominancia de los mismos descriptores verbales del componente afectivo del dolor para ambos los sexos. La intensidad del dolor fue categorizada como moderada, no hubo diferencia estadística relevante cuanto al dolor en el postoperatorio de toracotomía postero-lateral. Estos datos dan margen para una analice con casuística mayor.*

**DESCRIPTORES:** toracotomía; dimensión del dolor

## ASPECTOS QUALITATIVO E QUANTITATIVO DA DOR DE PACIENTES SUBMETIDOS À TORACOTOMIA PÓSTERO-LATERAL

*Estudo descritivo que objetivou comparar o comportamento qualitativo e quantitativo da dor em pacientes submetidos à toracotomia póstero-lateral (tpl). A amostra foi constituida por 18 indivíduos, sendo 10 homens e 8 mulheres com média de idade de 44 anos. Como instrumentos, utilizou-se a ficha de avaliação fisioterapêutica, escala numérica da dor e questionário para dor McGill. A dor na escala numérica foi considerada moderada (5) para ambos os sexos. Os descritores do questionário para dor McGill, escolhidos com maior frequência pelos pacientes, foram: no componente sensorial, latejante4, pontada1, choque2, fina1 e puxão2; no componente afetivo, cansativa1, enjoada1, castigante1 e miserável1 e no componente avaliativo foi chata1. As características da dor no grupo sensorial foram mais evidentes no grupo masculino. Não foram observadas diferenças estatísticas significantes entre as respostas quantitativas da dor de homens e mulheres. No que diz respeito ao aspecto qualitativo, observou-se predominância dos mesmos descritores verbais do componente afetivo da dor para ambos os sexos. A intensidade dolorosa foi categorizada como moderada, não houve diferença estatística significativa quanto à dor no pós-operatório de toracotomia póstero-lateral. Esses dados dão margem para a análise com casuística maior.*

**DESCRIPTORES:** toracotomia; medição da dor

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## INTRODUCTION

**P**ain assessment is a complex process, which can only be performed by researchers based on reports by victims of tissue aggression. Precision in pain description is indicated by patients' subjective reports<sup>(1)</sup>. Pain perception is conceived as an unpleasant sensory and emotional experience associated with real or potential tissue injury or described in terms of this injury<sup>(2-5)</sup>. Pain is modulated by cognition<sup>(2,4-5)</sup>, as well as by each individual's cultural and physical characteristics and gender<sup>(3)</sup>.

Although some researchers restrict themselves to assessing pain in terms of intensity only, using unidimensional scales, the pain phenomenon knowingly involves other - sensory and affect - dimensions, and this multidimensional approach is possible by using the McGill pain questionnaire. This instrument consists of 78 descriptors distributed in four large groups<sup>(6)</sup>. Its application in research<sup>(7-9)</sup> has not addressed pain quality perceptions in male and female patients submitted to lateral posterior thoracotomy (lpt). Scientific literature contains countless citations and adaptations of the McGill questionnaire to different languages, including Portuguese, Italian, Spanish, Norwegian, German, Arabic and French. Its use in different clinical situations has demonstrated that it is a reliable and effective pain assessment instrument<sup>(7-9)</sup>.

Knowing that most patients report acute pain in the postoperative phase and starting from the premise that there are quantitative and qualitative differences in pain perception between men and women submitted to lpt, this study aims to verify pain intensity and characterize it by applying the numerical scale and the McGill pain questionnaire, as it is not clear which pain components and verbal descriptors are more related to pain deriving from lpt.

Starting from these initial considerations, existing gaps in literature and clinical experience in respiratory physiotherapy, and concerned about care quality and adequate pain treatment for patients in the postoperative period after lpt, our main goal in this study was to compare qualitative and quantitative pain behavior in patients submitted to lateral posterior thoracotomy, according to sex.

## METHODOLOGY

This descriptive case study examined the pain phenomenon in order to get to know its nature,

composition and qualitative and quantitative behavior in patients submitted to lateral posterior thoracotomy.

We used a contingency sample, consisting of 18 patients distributed in two groups according to sex, ten men and eight women, submitted to lateral posterior thoracotomy at the University Hospital Onofre Lopes (HUOL), located in Natal/RN, Brazil. The sample included patients with cognitive conditions to answer the instruments and who were willing to volunteer for participation. The most frequent clinical diagnosis in the study sample was sequela of pulmonary tuberculosis, found in 30% of men and 37.5% of women.

Ages ranged from 13 to 61 years in the male group (n = 10) and from 29 to 59 years in the female group (n = 8), with 44 years as the median in both groups. The predominant education level was basic education in 50% of men and 75% of women. Ninety percent of men and 100% of women received general anesthesia. Average duration of surgery was 4h in the male group and 3h in the female group. Sixty percent of men were submitted to right lateral posterior thoracotomy and had two thoracic drains; the other 40% were submitted to left lpt, 30% with one drain and 10% with two drains. Seventy-five percent of women were subject to right lpt, 50 % of whom had two right thoracic drains and 25% only one drain, while the 25% submitted to left lpt had one left thoracic drain.

The physiotherapeutic assessment file was used for general data collection, and the numerical pain scale for unidimensional pain assessment. This instrument consists of a zero-to-ten interval, in which zero means absence of pain and ten the worst imaginable pain. This scale is also classified as mild pain (0-3), moderate pain (4-7) and severe pain (8-10).

For the multidimensional approach, we used the McGill Pain Questionnaire, which consists of 78 verbal descriptors in 4 large groups (1-sensory, 2-affect, 3-evaluative and 4-miscellaneous) and distributed in 20 subgroups. Each descriptor has a specific rank value, ranging from 1 to 6 and represented in the results as subscript figures. The patient's descriptor choice gave us two measures: the number of descriptors chosen and the pain level, obtained by adding up the chosen descriptors' rank values.

All procedures were carried out after approval by the UFRN Ethics Committee and after the signing of the free and informed consent term, in compliance with

ethical aspects determined in Resolution 196/96 by the National Health Council<sup>(10)</sup>. At a time when patients were awake, directed and complained of pain at the intensive therapy unit (ITU), we carried out a physiotherapeutic assessment. Then, we verified their pain characteristics through the numerical scale, which was shown to the patient, who chose the number from zero to ten that best represented his/her pain, and through the McGill pain questionnaire. During its application, the therapist read the 78 descriptors and the patient either chose the word or not which best represented his/her pain in each subgroup of the questionnaire. Thus, all descriptors chosen by the patients were registered at the moment they felt pain.

Data were submitted to the following statistical tests: Mann-Whitney U test (for the mean number of descriptors chosen and the sum of these descriptors in the sensory, affect and evaluative pain components), correlation test (for the numerical pain scale, the mean number of descriptors chosen and the sum of these descriptors in the sensory, affect and evaluative pain components) and regression analysis (for the variables numerical pain scale, age, duration of surgery, number of drains and side of surgery), using Statistic 5.0. software.

## RESULTS

First, pain intensity was assessed through the numerical pain scale. The median found was 5, both for men (3-8) and women (2-9), situating post-lateral posterior thoracotomy pain as moderate. No significant correlation was found between duration of surgery ( $p=0.933$ ) and age ( $p=0.968$ ) on the one hand and the numerical pain scale on the other. However, we found a significant correlation ( $p=0.026$ ) between the number of thoracic drains and the numerical pain scale. Numerical scale data were also submitted to regression analysis, showing that mean pain levels were higher in case of right than left lpt.

Qualitative pain aspects were analyzed on the basis of the McGill verbal descriptors most frequently mentioned by the sample. The subscript rank value (1,2,3,4,5,6) of each verbal descriptor represents the intensity of each word. Group 4 (miscellaneous) was not described, as it is only used to confirm data obtained in the other three groups (sensory, affect and evaluative).

In component 1 - sensory (represented by subgroups 1 to 10) - we found that men chose descriptors with higher rank values than women for subgroups 1,3,5,6,7,8,10. For subgroups 4 and 9, on

the opposite, men chose descriptors with lower rank values than women. Men and women only chose descriptors with the same rank values for subgroup 2, as shown in Table 1.

Table 1 - Frequency of main verbal descriptors mentioned by the sample on the sensory, affect and evaluative components of the McGill pain questionnaire. Natal/RN, 2004

Pain components	McGill subgroups	Women	%	Men	%
Sensory	1	Throbbing <sub>4</sub> *	62.5	Pulsing <sub>5</sub> / throbbing <sub>4</sub> */ beating <sub>5</sub>	20
	2	Jumping <sub>1</sub> */ Flashing <sub>2</sub> *	37.5	Jumping <sub>1</sub> */ Flashing <sub>2</sub> *	30
	3	Boring <sub>2</sub>	37.5	Drilling <sub>3</sub> / Stabbing <sub>4</sub> / Lacerating <sub>5</sub>	20
	4	Sharp <sub>1</sub> */ Lacerating <sub>3</sub>	37.5	Sharp <sub>1</sub> *	30
	5	Cramping <sub>4</sub>	50	Gnawing <sub>3</sub> / Crushing <sub>5</sub>	30
	6	Pulling <sub>2</sub> *	50	Pulling <sub>2</sub> */ Wrenching <sub>3</sub>	50
	7	Scalding <sub>3</sub>	62.5	Burning <sub>2</sub> / Searing <sub>4</sub>	30
	8	Smarting <sub>3</sub>	62.5	Stinging <sub>4</sub>	60
	9	Heavy <sub>5</sub>	50	Aching <sub>4</sub>	50
	10	Taut <sub>2</sub>	50	Splitting <sub>4</sub>	40
Affect	11	Tiring <sub>1</sub> *	75	Tiring <sub>1</sub> *	80
	12	Sickening <sub>1</sub> *	75	Sickening <sub>1</sub> *	80
	13	Punishing <sub>1</sub> *	50	Punishing <sub>1</sub> *	50
	15	Wretched <sub>1</sub> *	50	Wretched <sub>1</sub> *	60
Evaluative	16	Annoying <sub>1</sub> *	37.5	Annoying <sub>1</sub> */ troublesome <sub>6</sub>	4

Observation: \* Common descriptors for men and women.

\*\* The subscript numbers represent the rank values for each descriptor

The female groups demonstrated greater homogeneity in the characterization of post-lateral posterior thoracotomy pain, as men used different descriptors to refer to their pain. Men and women both used the following words in the sensory group: throbbing<sub>4</sub>, jumping<sub>1</sub>, flashing<sub>2</sub>, sharp<sub>1</sub> and pulling<sub>2</sub>, which refer to mechanical, thermal, vividness and spatial properties of pain in patients who suffered a tissue injury during lpt procedures.

In component 2 - affect, including subgroups 11, 12, 13, 14, 15 - women and men characterized post-lpt pain as tiring<sub>1</sub>, sickening<sub>1</sub>, punishing<sub>1</sub> and wretched<sub>1</sub>. It was only in subgroup 14 that men chose cruel<sub>3</sub> (40%), while women chose fearful<sub>1</sub> (62.5%). These terms describe the behavior of the affect dimension in terms of pain-related tension, fear and neurovegetative responses in patients submitted to lpt surgical procedures.

In component 3 - evaluative, represented by subgroup 16 - 37.5% of women characterized their pain as annoying<sub>1</sub>, while men used annoying<sub>1</sub> (40%) and

troublesome<sub>2</sub> (40%). The answers mentioned in this group allow individuals to express a global assessment of their pain experience. After having suffered a tissue injury during surgical incision for lpt, both men and women expressed their pain as annoying.

The quantitative parameters (number of descriptors chosen and sum of rank values for these descriptors) of the sensory, affect and evaluative pain components were compared between men and women. We neither found a significant correlation between the number of descriptors chosen and age ( $p=0.193$ ), duration of surgery ( $p=0.517$ ) and number of drains ( $p=0.779$ ), nor between the sum of descriptor rank values and the same variables, with  $p=0.237$ ,  $p=0.924$  and  $p=0.144$ , respectively.

In total, the sensory component consists of 42 descriptors, distributed in ten subgroups. One descriptor was chosen in each subgroup (maximum ten descriptors). The mean number of descriptors chosen by men was 8.8 (standard deviation $\pm 2$ ), and the sum of these descriptors' rank values equaled 25.9 (standard deviation $\pm 3.5$ ). For women, the mean number of descriptors chosen was 8.6 (standard deviation $\pm 2$ ), and the sum of these descriptors' rank values was equal to 23.8 (standard deviation $\pm 9$ ). A comparison between these mean numbers ( $p=0.903$ ) and sums ( $p=0.310$ ) for men and women submitted to lpt did not reveal statistically significant differences on the Mann-Whitney U test. Table 2 shows the distribution of the number of descriptors and sum of descriptor rank values as mentioned by the sample.

Table 2 - Distribution of number and sum of descriptor rank values mentioned by the sample on the sensory, affect and evaluative components of the McGill questionnaire. Natal/RN, 2004

Patients	Nº of descriptors						Sum of descriptor rank values					
	Men			Women			Men			Women		
	SE	AF	AV	SE	AF	AV	SE	AF	AV	SE	AF	AV
1	9	3	1	8	5	1	23	4	1	22	5	1
2	8	2	1	6	3	1	22	2	2	15	3	1
3	10	5	1	8	5	1	29	8	2	25	9	4
4	9	5	1	10	5	1	28	7	4	22	6	1
5	9	5	1	10	5	5	28	7	4	22	6	1
6	8	4	1	10	5	1	21	5	1	28	5	2
7	6	4	1	8	4	1	22	4	1	23	8	2
8	8	4	1	9	5	1	25	4	2	23	12	5
9	10	5	1	-	-	-	37	10	2	-	-	-
10	10	5	1	-	-	-	22	7	1	-	-	-
<b>Mean</b>	<b>8,8</b>	<b>4,2</b>	<b>1</b>	<b>8,6</b>	<b>4,6</b>	<b>1</b>	<b>25,9</b>	<b>6,2</b>	<b>2,1</b>	<b>23,8</b>	<b>6,7</b>	<b>2,5</b>

Pain components: Sensory (SE) = Descriptors Max. n. 10, Sum of rank values Max n. 42.

Affect (AF) = Descriptors Max. n. 5, Sum of rank values Max n. 14.

Evaluative (AV) = Descriptors Max. n. 1, Sum of rank values Max n. 5.

Observation: No statistical differences were detected when applying Mann-Whitney's U-test ( $p<0.05$ ), between the number of descriptors and the sum of descriptor rank values among the study participants.

The affect component includes 14 descriptors, distributed in five subgroups. Only one descriptor was chosen in each subgroup (maximum five descriptors). The mean number of descriptors chosen by men was 4.2 (standard deviation $\pm 1.5$ ), and the sum of descriptors equaled 6.2 (standard deviation $\pm 4.5$ ). For women, the mean number of descriptors chosen was 4.6 (standard deviation  $\pm 1$ ) and the sum of these descriptors totaled 6.7 (standard deviation $\pm 4.5$ ). Again, a comparison between the mean numbers ( $p=0.272$ ) and sums ( $p=0.599$ ) for men and women in the affect group did not reveal statistically significant differences on the Mann-Whitney U test.

The evaluative pain component consists of five descriptors in one subgroup. Only one descriptor could be chosen. Men used a descriptor with a mean sum of 2.1 (standard deviation $\pm 2$ ). Women, on the other hand chose a descriptor with a mean rank value sum of 2.5 (standard deviation $\pm 2$ ). , and the sum of these descriptors' rank values was equal to 23.8 (standard deviation $\pm 9$ ). A comparison between these mean numbers ( $p=0.657$ ) and the rank value sums ( $p=0.716$ ) among men and women did not show statistical significance on the Mann-Whitney U test.

## DISCUSSION

In this study, a comparison between the answers of male and female patients submitted to lpt revealed a tendency to choose the same descriptors in the affect component. In a maximum of five descriptors, men and women chose the same terms in four cases. In the evaluative component, the descriptor women most mentioned was also one of the terms most mentioned by men. However, in the sensory component, where a maximum of ten descriptors could be chosen, both groups chose the same terms in only four cases. The sample described the qualitative aspects of lpt-related pain as: throbbing, jumping, flashing, sharp, pulling, tiring, sickening, punishing, wretched and annoying.

Qualitative pain aspects have been examined in research on acute pain in patients with orthopedic, gynecologic and surgical injuries. Patients victims of fractures, chafing, cuts, among other injuries, more frequently chose the following descriptors: throbbing, sharp, aching, throbbing, pounding, sore, tender, burning, hot, stabbing, crushing and stinging<sup>(11)</sup>. There was a clear similarity in descriptors chosen by patients

with the same injury type: patients with fractures chose hot/burning, while patients with chafing chose throbbing. Another study<sup>(12)</sup> assessed patients submitted to surgical interventions and found more requests for analgesics in patients choosing descriptors with higher pain rating indices. The most frequent terms in that study were: jumping, pricking, pressing, pulling, heavy and tender in the sensory component; tiring and exhausting in the affect component and annoying in the evaluative group.

Yet another research<sup>(13)</sup> revealed similar results to our study, evidencing that between 70 and 80% of patients submitted to thoracotomy indicated severe or moderate pain. Pain intensity was compared between patients submitted to lateral posterior and anterior thoracotomy patients, using the visual analogue scale, and the most severe pain was found in lpt patients<sup>(14)</sup>. Research shows the intensity of pain characteristics, serving as a parameter to verify the efficacy of postoperative pain relief medication. Studies evaluated the effect of two analgesics, bupivacaine and lidocaine, assessing pain by the visual analogue scale and the demand for analgesics, and found no statistically significant difference in pain intensity between the two study groups<sup>(15-16)</sup>.

Researchers' efforts to promote pre- and postoperative pain control are fundamental for patients' recovery.

## CONCLUSIONS

Pain intensity after lpt was considered moderate in accordance with the numerical scale. Although they underwent the same surgical procedure, men and women presented different descriptors for the sensory component of this pain. This was not found for the affect and evaluative components. The McGill descriptors throbbing<sub>4</sub>, jumping<sub>1</sub>, flashing<sub>2</sub>, sharp<sub>1</sub>, pulling<sub>2</sub>, tiring<sub>1</sub>, sickening<sub>1</sub>, punishing<sub>1</sub>, wretched<sub>1</sub> and annoying<sub>1</sub> were used in common on the three components of the McGill pain questionnaire. This shows a tendency in the qualitative behavior of pain due to lpt. A comparison of quantitative McGill parameters between men and women did not reveal statistical differences. One of the main limitations to this study is the small number of subjects and difficulties to control female hormonal factors, which can interfere in pain responses.

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