



# Correlation Between Degree of Preoperative Anxiety and Postoperative Pain in Patients Under Elective Surgery



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## Abstract

**Introduction:** Preoperative anxiety frequently encountered in patients before surgery, contributes and/or predisposes to different undesirable effects in the postoperative period of these patients, highlighting postoperative pain although a close relationship has not been established yet. There are a large number of validated scales that help to assess the degree of anxiety and pain that each patient will experience during their surgical procedure

**Objective:** To determine the degree of correlation between preoperative anxiety and the level of postoperative pain in patients under elective surgery.

**Material and methods:** Correlation study carried out in HGR No.1 IMSS Obregón, Sonora from January 2016 to May 2106, in patients electively programmed for orthopedic and orthopedic surgery. Measuring level of anxiety with Amsterdam scale and postoperative pain with visual analogue scale.

**Results:** There is a positive relationship between the perceived pain of patients with respect to the preoperative anxiety suffered

**Conclusion:** Preoperative anxiety is directly linked to the postoperative pain of the patient undergoing elective traumatology surgery.

**Keywords:** Anxiety; Pain; Surgery; Elective

## Introduction

Anxiety is defined as that unpleasant feeling that is perceived as fear of a threatening danger, often the threat is unknown and invariably includes a variety of emotional and hemodynamic responses that the organism undergoes before said stimulation of emotions [1]. Among the most important risk factors documented for the presence of anxiety is the family history of anxiety and being of female gender [2]. Previous studies have described pre-surgical anxiety as an entity that can occur up to a week prior to the surgical act, being referred to as physical and emotional discomfort that has as its origin a sense of imminent danger, which can range from restlessness to anxiety, Panic varies according to the type of surgery, time of hospitalization and expected medical attention [3].

Studies have been conducted where it was found that the more anxiety the patient experiences before the operation, the longer his convalescence time is prolonged, as well as the pain he experiences during his stay in recovery, being this the moment that makes the patient more anxious [4]. Elective surgery is a procedure that carries with it a series of fears: fear of not waking up from anesthesia, feeling pain during the operation, pain that can be caused by inva-

sive procedures prior to the intervention, revealing personal information due to the effects of anesthesia or the results of surgery [5].

Thanks to several studies it has been possible to identify a close relationship between the level of preoperative anxiety and the events during the surgical recovery, example of this is the postoperative pain which is influenced by the level of anxiety that the patient presents [6]. The patient's own characteristics such as age, gender, type of patient, previous experiences or type of surgery could contribute to explain the great variability in the prevalence of postoperative pain. However, the bibliography is quite superficial in these aspects [7]. As anesthesiologists it should be of utmost importance to know the level of anxiety that pre-surgical patients present, although this action is difficult for many reasons, including poor quality of care in the pre-anesthetic assessment aimed at measuring and classifying the degree of anxiety in patients who will undergo scheduled surgeries [8]. It has been shown that emotional states such as anxiety and fear, directly influence the patient's response to the surgical procedure and the level of analgesia that will be obtained during the postoperative period, so that various scales

have been performed to give an estimate of the level of anxiety and pain that would present those patients subjected to surgical stress [7]. The Amsterdam Preoperative Anxiety Scale (APAIS) includes six questions, four of the six questions assess anxiety in relation to anesthesia and surgical intervention, the other two are related to the quantity and quality of information provided to the patient about Your procedure to be done [9].

The assessment aimed at pain, according to the intensity and severity that the patient refers is mostly made with the visual analog scale (VAS), which is a validated instrument to estimate the level of pain, which consists of a straight line numbered from 0 to 10, where 0 represents painless, and 10 is the strongest pain the patient has ever experienced [10].

## Material and Methods

Prior authorization from the research and research ethics committee of HGR 1 IMSS in Obregón, Sonora, a correlational, observational, analytical, prospective and longitudinal study was conducted during the months of January to May 2016 with 30 patients, 18 women and 12 men.

The patients age ranged from 18 to 60 years of age, they were scheduled for orthopedic or trauma surgery. All the participants signed an informed consent form, the Amsterdam preoperative anxiety and information scale was applied to patients who were in the pre-operative room, prior to their admission to the surgery room.

**Table 1:** Demographic data of the sample, \*n= 30.

	Minimum	Maximum	Average	Divert Standard
Age (years)	18	60	38.4333	±13.73
Weight (kg)	54	90	76.3333	±10.03
Gender	F=18(60%)		M=12(40%)	

**Table 2:** Preoperative anxiety level according to Amsterdam scale related to postoperative pain levels, \*n= 30.

	Preoperative Anxiety, P	
EVA righ now	0.355	0.054
EVA 1ra hour	0.618	0
EVA 2da hour	0.722	0

**Table 2.1:** Correlations between the variables of anxiety and perceived pain.

Variable	EVA Righ Now	EVA 1 Hour	Eva 2 Hour
Preoperative anxiety	0.35	0.61*	0.72*

\*p<.05

**Table 3:** Comparison of preoperative anxiety levels and postoperative pain between men and women (N=30).

	Female	Male	p
<b>Anxiety level</b>			
No hay	8 (66.6%)	4 (33.3%)	0.808
There is not	3 (60%)	2 (40%)	
Moderade	7 (53.8%)	6 (46.2%)	

In the operating room, the Anesthesiologist selected the type of anesthesia that was going to be used and the anesthetic technique of choice without using intrathecal opioids. During the procedure, non-steroid anti-inflammatory drugs (NSAIDs) were used for pain management to finalize the surgical procedure, if there were no contraindications (ketorolac 60mg iv single dose and/or, metamizol 2gr iv and/or, diclofenac 40mg iv) When the patient was in the post-anesthetic care unit, the visual analog scale (VAS) was applied, immediately after surgery, at the hour and two hours after.

## Results

The study sample consisted of 30 patients, of whom 18 (60%) were women and 12 (40%) men, who had a mean age of 38.43 (SD = 13.73 years) ranging from 18 to 60 years; likewise, the average weight of patients was 76.33 (SD = 10.03kg.) with a minimum weight of 54 and a maximum weight of 90kg. The results obtained in this study showed the presence of high levels of preoperative anxiety in patients scheduled for elective traumatology and orthopedic surgery, found a coefficient of correlation between preoperative anxiety and immediate VAS of 0.355 (p = 0.074), to assess said correlation to The passage of time during the first hour showed a correlation coefficient (rho= 0.61, p = 0.000), and at the second hour a strong correlation was observed (rho= 0.72, p = 0.000). On the other hand, no statistically significant differences were found between the levels of preoperative anxiety and the perceived post-operative pain with respect to the patient's gender (p = 0.80) as shown in the Table 1-3.

High			
<b>EVA righ now</b>			
Nothing or little pain	16 (59.2%)	11 (40.74%)	0.804
Moderate pain	2 (66.6%)	1 (33.3%)	
<b>EVA 1ra hour</b>			
Nothing or little pain	8 (53.33%)	7 (46.66%)	0.456
Moderate pain	10 (66.66%)	5 (33.33%)	
<b>EVA 2da hour</b>			
Nothing or little pain	6 (75%)	2 (25%)	0.376
Moderate pain	6 (46.15%)	7 (53.84%)	
Very strong pain	6 (66.66%)	3 (33.33%)	

## Discussion

Regarding the levels of preoperative anxiety, patients report on average a mild or moderate level, considering that the scale of measurement varies between those who do not feel anxiety (4-8 pts) and those who have a high level (17-20pts). Likewise, it has been found that postoperative pain does not diminish with the passage of time.

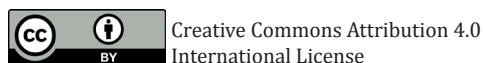
The results of this study suggest the presence of high levels of preoperative anxiety in patients undergoing elective surgery at HGR No. 1, Cd. Obregón hospital, as well as a close correlation between these levels of anxiety and the postoperative pain presented by the patients, just as Laufenberg, et al. [6]. Mentioned, where preoperative pain and anxiety were only measured in a single moment, unlike our study where strong statistical significance was observed even 2 hours later to the surgical procedure.

Finding little correlation with a coefficient ( $P=0.355$ ) to the immediate between preoperative anxiety and pain level (VAS) being statistically insignificant  $p=0.54$ , although the present study did not allow us to differentiate if this correlation was affected by the anesthetic effects residuals that patients could present when the measurement of EVA immediately after postsurgical, but the correlation coefficient increases in significance over time, As correlation between gender and presence of anxiety and/or postoperative pain could not discern any statistical significance, since similar percentages of anxiety were observed in both sexes, unlike that obtained by other researchers where the female sex

had higher levels of anxiety in comparison to the male gender, as mentioned by Robledo & Sillero [7] in their analysis.

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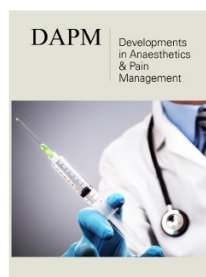
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