

## Impact of Preoperative Anxiety Intervention on Postoperative Pain

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### ABSTRACT

**Background and Objectives:** Numerous prospective randomized studies demonstrate the effectiveness of simple preoperative anxiety intervention in improving surgery outcomes as measured by decreased anxiety, decreased pain and reduced need for pain medications. The objective of study is to find out the effect of simple preoperative anxiety intervention on postoperative pain.

**Patients and Methods:** : A sample of 300 patients who were admitted in general surgery units of two teaching hospitals ( Rezgari& Hawler) in Erbil city from 5<sup>th</sup> April 2009 to the 10<sup>th</sup> November 2009 were allocated randomly into two groups; 150 patients received preoperative anxiety intervention before surgery (which includes giving information about surgery, anesthesia and post operative management of pain) and another 150 patients as a control group received no intervention. The assessment tool included a special questionnaire about socio-demographic information and the anxiety level was measured before surgery by state-trait anxiety inventory scale of Spilberger which includes 20 items while measurement of pain score was obtained during 48 hours after surgery by visual analog scale (VAS) which is composed of a (10 cm) horizontal line.

**Results:** : The patients in intervention group showed low pain scores; the Mean score and standard deviation of VAS scale for intervention group was (4.47±0.692) while for control group the Mean score and standard deviation was (6.55±1.121).

**Conclusions:** : based on the results of the study the investigators conclude that giving information to patient before surgery can reduce the preoperative anxiety level which leads to decrease postoperative pain level.

**Key words** :postoperative pain, preoperative anxiety, anxiety intervention.

### INTRODUCTION:

Many patients experience anxiety before surgery as well as pain afterward. Pain and anxiety are frequently managed by pharmacologic means, such as opioids and or benzodiazepines, but even so, pain and anxiety frequently accompany surgery. Studies demonstrate the effectiveness of simple preoperative anxiety intervention, in improving surgery outcomes as evidenced by decreased anxiety, pain and reduced need for pain medication <sup>1</sup>. Pain is a complex issue not simply a function of tissue damage. Many factors such as emotions, beliefs, past experience, expectations, as well as drugs the patient

extent of pain experience. Pain and anxiety are two sides of same coin. Pain can cause a person to be anxious and an anxious patient is likely to experience more pain than a patient who is not anxious. Therefore interventions that modulate anxiety will reduce pain <sup>2</sup>. It has been found that preoperative anxiety correlated with post operative pain. Patients who enter hospital feeling anxious are predicted to continue to do so postoperatively <sup>3</sup>. It has been found that patients' expectations about their pain and its effect on their lives contributed to the degree of anxiety <sup>4</sup>. Many studies have focused on postoperative pain in relation to

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in patients facing surgery<sup>5</sup>. Patients who are psychologically prepared for surgery tend to have better surgical outcomes. Preoperative information teaching meets the patient's need for information regarding the surgical experience, which in turn may alleviate most of his/her fears. Patients who are more knowledgeable about what to expect after surgery often cope better with postoperative pain<sup>6,7,8</sup>. For purpose of this study a randomized clinical trial was employed to identify the impact of preoperative anxiety intervention on postoperative pain in patients undergoing major general surgery.

#### **PATIENTS AND METHODS:**

Written official permission has been obtained from college of nursing, Hawler Medical University and also two teaching hospitals (Hawler and Rezgari) in Erbil city as well as patient's informed consent.

A sample of 300 patients who were admitted in general surgery units of two Erbil teaching hospitals (Rezgari & Hawler) from 5<sup>th</sup> April 2009 to the 10<sup>th</sup> November 2009 were allocated randomly in to two groups (intervention=150 patients and control=150 patients); inclusion criteria for the studied sample were: the age 18 and above, major general surgery, both genders and knowing the Kurdish language. Exclusion criteria were: a known case of psychiatric disorders, obvious hearing and visual deficits. The instrument of the study was composed of a special questionnaire (includes socio-demographic part, anxiety measurement scale and pain scale). The pain scale was visual analog scale (VAS) which allows patients easily indicate their degree of postoperative pain by simply marking a point on a horizontal 10 centimeter line and is easy to implement postoperatively.

0 indicates no pain, 1-3 indicates mild pain 4-6 indicates moderate pain, 7-9 indicates severe pain, 10 indicates unimaginable pain. The anxiety measuring scale was Spilberger State- Trait Anxiety Inventory (STAI) which consists of 20 items. High

Scores 0-20 = no anxiety  
 Scores 21-40 = mild anxiety  
 Scores 41-60 = moderate anxiety  
 Scores 61-80 = severe anxiety

All (300) patients were interviewed at evening before surgery by applying the instruments of study and the time required for this purpose was (30-45) minutes, then the intervention which was composed of giving information about surgery, anesthesia and postoperative pain management was used for intervention group, while control group received no information, and finally the level of postoperative pain was assessed within 48 hours after surgery for two groups. The data were analyzed by applying SPSS through chi-square, t-test, contingency coefficient and descriptive analysis (frequency and percentage), with  $\leq 0.05$  for

#### **RESULT:**

P value.

Three hundred patients were enrolled in this study which allocated randomly into two groups ( intervention=150 & control=150 ), the highest percentage of patients in intervention and control group were at age range of 40-49 years (26.7%, 27.3% respectively), the male to female ratio in each group was 1:1.14, majority of patients were married (intervention=79.3%, control=84.7%), poor economic state (intervention=55.3%, control=60.7%), illiterate (intervention=60.7%, control=55.3), housewife occupation for female patients (intervention=48.7%, control=51.3%) and free work occupation for male patients (intervention=27.3%, control=23.4%) none of the variables showed significant difference by using t-test as shown in (Table 1(A+B)). There was difference between pain scores after surgery in two groups; the Mean score of VAS scale for intervention was (4.47) while for control group the Mean was (6.55) (Table 2). The (Table 3) refers to association between postoperative pain levels of two groups; and the table shows significant . association. (P value = 0.001

**Table1 (A):** Demographic distribution of intervention and control groups

Variables	Intervention (150)		Control (150)	
	No.	%	No.	%
<b>Age (years)</b>				
20-29	26	17.3	25	16.7
30-39	30	20	30	20
40-49	40	26.7	41	27.3
50-59	29	19.3	29	19.3
60-69	21	14	23	15.4
70 and above	4	2.7	2	1.3
<b>P value (Chi-square)</b>	<b>0.385</b>			
<b>Gender</b>				
Male	70	46.7	70	46.7
Female	80	53.3	80	53.3
<b>P value (Chi-square)</b>	<b>1.000</b>			
<b>Residency</b>				
Center	89	59.3	78	52
Discrete	44	29.3	49	32.6
Village	17	11.4	23	15.4
<b>P value (Chi-square)</b>	<b>0.388</b>			
<b>Marital status</b>				
Married	119	79.3	127	84.7
Single	16	10.7	12	8
Widowed	14	9.3	8	5.3
Divorced	1	0.7	3	2
<b>P value (Chi-square)</b>	<b>0.617</b>			

**Table 1(B):** socio-economic distribution of intervention and control groups

Variable	Intervention (150)		Control (150)	
	No.	%	No.	%
<b>Educational level</b>				
Illiterate	91	60.7	83	55.3
Read and write	26	17.3	37	24.7
Primary graduation	20	13.3	14	9.3
Secondary graduation	6	4	12	8
Institute	6	4	3	2
College and higher	1	0.7	1	0.7
<b>P value (Chi-square)</b>	<b>0.274</b>			
<b>Occupation</b>				
Housewife	73	48.7	77	51.3
Free work	41	27.3	35	23.4
Jobless (unemployed)	11	7.3	18	12
Employer	25	16.7	20	13.3
<b>P value (Chi-square)</b>	<b>0.617</b>			
<b>Income</b>				
Enough	67	44.7	59	39.3
Not enough	83	55.3	91	60.7
<b>P value (Chi-square)</b>	<b>0.349</b>			

**Table2:** comparative differences between intervention and control groups relative to post-operative pain scores.

Post-op.pain scores	Intervention group	Control group
<b>No. of patients</b>	150	150
<b>Mean</b>	4.47	6.55
<b>Standard Deviation</b>	0.692	1.121
<b>(t-test) P value</b>	<0.001	<0.001

**Table3** : Comparative Association between post operative pains in intervention and Control groups

Post-op.pain level	Intervention		Control	
	No. of patients	%	No. of patients	%
Mild	10	7	0	0
Moderate	131	87	86	57.4
Severe	9	6	64	42.6
Unimaginable	0	0	0	0
Total	150	100	150	100
P value (contingency coefficient)	<0.001			

### DISCUSSION:

Studies have focused on postoperative pain outcome in relation to preoperative anxiety in patients undergoing surgery and this outcome alone justifies the attempts to decrease preoperative anxiety<sup>9,10</sup>. In this study we found significant differences and associations between postoperative pain levels among intervention group and control group. These results are supported by several studies like: Lamontagne et al, (2003)<sup>11</sup> in France, they applied cognitive behavioral intervention for reducing preoperative anxiety of patients with major surgery for reducing postoperative anxiety and pain and results showed effectiveness of intervention in reducing post operative anxiety and pain. The finding is supported by Diaz and Larson, (2005) in United States of America<sup>1</sup>; they evaluated the implementation of a mind-body program for surgical patients and its impact on anxiety and pain. 230 patients with major surgery participated in this investigation and

assigned into intervention and control groups; Results showed lower anxiety and pain scores in the intervention group. Also results are supported by Lin & Wang, (2005)<sup>12</sup>, they studied the effects of pre-operative nursing intervention on pain and anxiety; the samples were 62 patients undergoing abdominal surgery assigned to experimental (n = 32) and control (n = 30), the experimental group received routine care and pre-operative nursing intervention for pain and anxiety, while the control group received only routine care, the results showed a significant decrease in pre-operative anxiety for experimental group and also significant lower postoperative pain intensity. The results also are supported by Blay and donoghne, (2004)<sup>13</sup> in Australia, they studied the effect of pre-operative education on post-operation pain levels among 93 elective laparoscopic cholecystectomy patients who assigned to control and intervention

group. Astin et al, (2005)<sup>14</sup> in USA, after systematic reviews and meta-analysis they found effectiveness of Mind-body therapy on reducing postoperative pain. There are some studies which failed to demonstrate effectiveness of preoperative anxiety intervention on postoperative pain so they are in disagreement with our results; these studies are: (; Mathews & Ridgeway, 1984; Johnston, 1988 and Johnston & voegele, 1993)<sup>15</sup>. These results has been done 15-20 years ago, probably they used different methods and tools of assessing the patients so this may be a reason that they did not get the effectiveness of the intervention, or they were studding different patients with different surgical interferences, while most of recent studies have been showed the effectiveness of anxiety reduction methods.

#### CONCLUSION:

Based on the results of the present study the investigators concluded that giving information to patients before surgery can reduce the postoperative pain.

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#### REFERENCES:

1. Diaz M, Larsen B. Preparing for successful surgery: An implementation study. CRNA 2005. 9 (3). (Accessed May 3, 2009, at <http://xnet.kp.org/permanentjournal/sum05/permanent.pdf>)
2. Dionne R, Phero J, Becker D. Non pharmacologic methods for managing pain and anxiety. Management of Pain& Anxiety in the Dental Office. Pennsylvania.W.B. Saunders company. An Imprint of Elsevier Science; 2002, P: 35.
3. Jeong-Yeon H. preoperative anxiety and inflammation requirements in Koreans. The contributing factors of anxiety and the effect of Midazolam as anxiolytic premeditation. Korean J Anesthesiol 2001. 25 (4). (Accessed May 7, 2009, at <http://www.ncbi.nlm.nih.gov/pmc/articles/>

[pmc2736533/](http://www.ncbi.nlm.nih.gov/pmc/articles/pmc2736533/))

4. Carr E, Thomas V. Patient experiences of anxiety, depression and acute pain after surgery: a longitudinal perspective. Institute of health& community studies, Bournemouth University, Bournemouth, Dorset. UK, 2008. (Accessed July 13,2009, at <http://docs.google.com/viewer?a=v&q=cache:kn>)
5. Wiens A. Preoperative anxiety in women. AORN 1998. (Accessed June 24,2009, at <http://www.encyclopedia.com/doc/>)
6. Beauchamp R, Evers M, Mattox K, Townsend C, Sabiston D. Sabiston textbook of surgery: the biological basis of modern surgical practice. 16<sup>th</sup> ed. London: W.B.Saunders Co, 2001.
7. Lawrence P, Bell R, Dayton M. essentials of general surgery. 3<sup>rd</sup> ed. Philadelphia, PA: Lippincott, Williams& Wilkins, 2000.
8. Lubin F, Walker K, Smith R. Medical Management of the Surgical Patient. (4<sup>th</sup> ed). Cambridge, UK: Cambridge University Press, 2003.
9. Henderson A, Zernike W. A study of the impact of information for surgical patient. Journal of Advanced nursing. 2001. 35(3):435-441.
10. Hughes S. The effects of giving patients preoperative information. Nursing Standard. 2002.16(28):33-37
11. Lamontagne L, Hepworth J, Cohen F, Salisbury M. Cognitive-behavioral intervention effects on adolescents anxiety and pain following spinal fusion surgery. Nursing Research Journal. lippincott Williams& Wilkins, 2003. 52(3):183-190. (Accessed April 21, 2009, at <http://www.ncbi.nlm.nih.gov/pubmed>)
12. Lin LY, Wang RH. Abdominal surgery, pain and anxiety: preoperative nursing intervention. Department of Nursing, Veterans General Hospital, Kaohsiung City, Taiwan. 2005. ( Accessed June 14, 2009, at <http://www.ncbi.nlm.nih.gov>)
13. Blay N, Donoghue J. The effect of pre-admission education on domiciliary recovery following Laparoscopic Cholecystectomy. Australian Journal of Advanced Nursing, 2005. 22(4). (Accessed April 12, 2009, at [http://www.ajan.com.au/ajan\\_22.4.html](http://www.ajan.com.au/ajan_22.4.html))
14. Astin J, Shapiro S, Eisenberg D, Forsys K. Mind-Body medicine: state of science, implementation for practice. American Board of Family Practice.2003. 16:131-147. (Accessed April 13, 2009, at <http://www.jabfm.org>)
15. Stoddard J, White K, Covino N, Strauss L. Impact of a brief intervention on patient anxiety prior to day surgery. Journal of clinical psychology in medical setting.2005. 12(2). (accessed on June 7, 2009, at <http://www.springerscience.com>)