

## Comparative Study of Preprocedural Anxiety in Patients Undergoing Interventional Pain Management in Prone Position Under Monitored Anesthesia Care: First Timer vs Experienced

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### Abstract

**Background and Objective:** The prevalence of preoperative anxiety has varied widely, from 11% to 80%, depending on the methods used to assess it. Patients with increased anxiety may carry greater risk of experiencing pain and complications during noxious medical procedures and interventional pain management. Aim of our study is to compare anxiety and expected pain before procedure and pain experienced during procedure in first timer patients and experienced patients undergoing interventional pain management.

**Material and Methods:** The 400 participating patients were divided into two groups. Group 1 (First timer) and Group 2 (Experienced). Pre-procedural anxiety and expected procedural pain were assessed 1 hr before procedure. After half an hour post procedure, patient was given same Proforma for scoring of experienced procedural pain. Data was analyzed by using SPSS 20.0 (SPSS Inc., Chicago, IL, USA). Mann Whitney U test and Wilcoxon Signed Rank test were used for statistical analysis.

**Results:** Preoperative anxiety is significantly higher in first timer patients than that in experienced patients. [Median- first timer patients = 8 (7-8), experienced patient = 4(3-5)], (P value= <0.001). Expected pain before procedure is seen higher in first timer patient than that in experienced patients. [Median- first timer patients=8(7-8), experienced patients=4(3-5)], (P value <0.001). Procedure pain experienced by first timer patients is significantly higher than that in experienced patients. [Median- first timer patients=6(5-7), experienced patients= 4(3-4)], (P value <0.001).

**Conclusion:** We concluded that lower level of anxiety in experienced group was associated with lower level of preprocedural expected pain and pain experienced during procedure. While in first timer, higher level of preprocedural anxiety was associated with higher level of preprocedural expected pain and pain experienced during procedure.

**Keywords:** Pain management; Anxiety; Anesthesia; Prone position.

### Introduction

Preoperative anxiety is described as an unpleasant state of tension that is secondary to a patient being concerned about a disease, hospitalization, incapacitation, anesthesia, surgery or his or her

anticipation of postoperative pain.<sup>1-2</sup> In clinical studies, the prevalence of preoperative anxiety has varied widely, from 11% to 80%, depending on the methods used to assess it.<sup>3-5</sup> Risk factors for preoperative anxiety include, female gender, high

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trait anxiety, negative future perception, history of cancer and smoking, previous psychiatric disorders, moderate to intense depressive symptoms and, higher educational level etc.

Patients with increased anxiety may carry greater risk of experiencing pain and complications during noxious medical procedures and interventional pain management. Moreover, anxiety has been correlated with increased pain, nausea and vomiting in the postoperative period, prolonged recovery and increased risk for infection.<sup>6</sup> It also intensifies pain during trigger point injection.<sup>7</sup> Thus; specifically targeting anxiety maybe beneficial in the control of pain during interventional pain management. Aim of our study is to compare anxiety in first timer patients and experienced patients undergoing interventional pain management, and to compare expected pain before procedure and pain experienced during procedure in first timer patients and experienced patients.

### Material and Methods

After obtaining institutional ethics committee approval and written informed consent, 400 patients undergoing interventional pain management enrolled in this prospective observational study. The participating patients were divided into two groups. Group 1 (First timer), consists of patients, who were undergoing interventional pain management for the first time. Group 2 (Experienced), consists of patients, who had experience of interventional pain management in past and come for repeat intervention. On the morning of procedure, pre-procedural anxiety and expected procedural pain were assessed 1 hr before procedure with the help of predesigned Proforma on zero to ten scale. After procedure, patient was shifted to post operative ward and after half an hour patient was given same Proforma for scoring of experienced procedural pain. Data was analyzed by using SPSS 20.0 (SPSS Inc., Chicago, IL, USA). Mann Whitney U test and Wilcoxon Signed Rank test were used for statistical analysis. Descriptive study in the form of mean, standard deviation was done. Multiple comparisons between two groups were done with independent t test.

### Observations and Result

Statistically significant difference was not present among both the groups in terms of gender, age and weight.

**Table 1:** Pre-operative anxiety (anxiety pre-op), pre-operative expected pain (pain\_pre-op), real pain experienced by patients intra-operative recorded in post-operative period (pain\_postop):

Patient's groups	Anxiety_preop Median (Interquartile range)	Pain_preop Median (Interquartile range)	Pain_postop Median (Interquartile range)
Experienced (n=236)	4 (3-5)	4 (3-5)	4 (3-4)
First Timer (n=164)	8 (7-8)	8 (7-8)	6 (5-7)
Total	6 (4-7)	5 (4-7)	4 (3-6)
p value	<0.001	<0.001	<0.001

Mann Whitney U test used

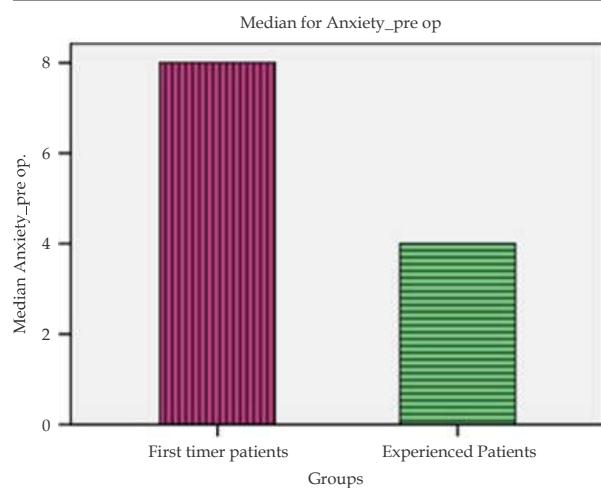


Fig. 1: Median anxiety in two groups:

There is significant difference in pre-operative anxiety in two groups. Anxiety is significantly higher in first timer patients than that in experienced patients. [Median- first timer patients = 8 (7-8), experienced patient = 4(3-5)], (P value= <0.001).

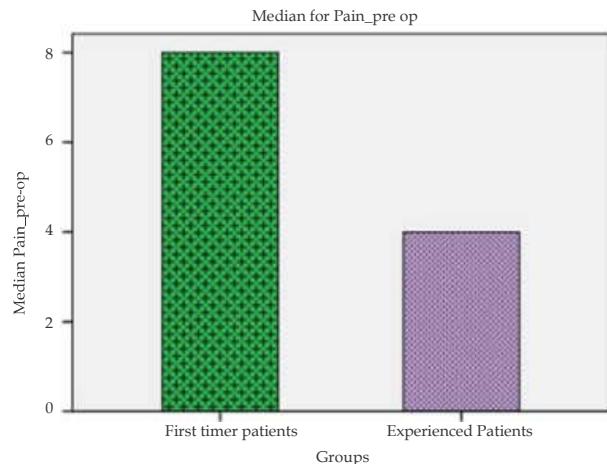
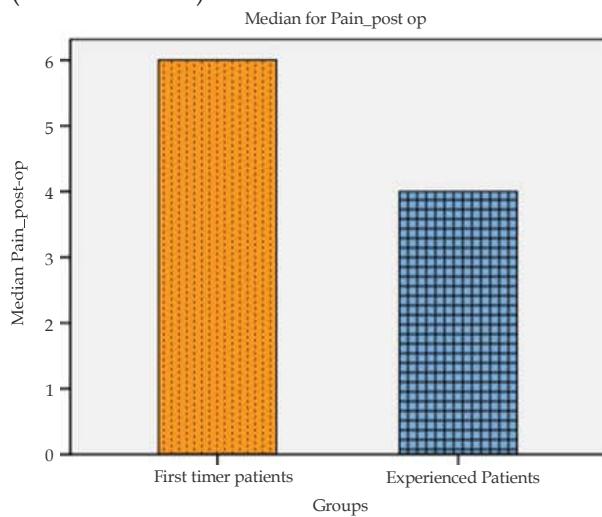


Fig. 2: Median pain \_ pre-op in two groups:

There is significant difference in pre-operative expected pain in two groups Expected pain before procedure is seen higher in first timer patient than

that in experienced patients. [Median- first timer patients=8(7-8), experienced patients=4(3-5)], (P value < 0.001).



**Fig. 4:** Median pain \_ post op in two groups:

There is significant difference in procedural pain experienced in two groups. Procedure pain experienced by first timer patients is significantly higher than that in experienced patients. [Median-first timer patients=6(5-7), experienced patients=4(3-4)], (P value <0.001)

**Table 5:** Comparison of pain\_preop and pain post-op in two groups:

Patients Groups	Pain_preop	Pain_postop	p value
Experienced (n=236)	4 (3-5)	4 (3-4)	<0.001
First timer (n=164)	8 (7-8)	6 (5-7)	<0.001
Total	6 (4-7)	5 (4-7)	<0.001
Wilcoxon Signed Ranks test used			

There is significant difference between pain-preop and pain\_postop in first timer group ( $p<0.001$ ) as well as in experienced group ( $p<0.001$ ).

**Table 6:** Relation between anxiety (pre-op) and education levels in two groups:

Education level	Median anxiety in two groups	
	First timer	Experienced
Illiterate	9	7
Primary education	8	6
High school	7	5
Intermediate	6	4
Graduation	5	3
Post-graduation	4	2
Above post graduation	3	1

Anxiety seems to be higher in patients with low education level in both group and decreases as the level of education increases.

## Discussion

In this study, there was higher level of preprocedural anxiety, expected pain before procedure and pain experienced during procedure in first timer group, in comparison to the experienced group. Higher level of preprocedural anxiety is associated with higher level of pain perception as seen in first timer group.

It is also observed that in first timer group median value of preprocedural expected pain is higher than median value of pain experienced during procedure. In experienced group, median values of preprocedural expected pain and pain experienced during procedure were same i.e. Four; but distribution of preprocedural expected pain was in the range of (Two to Nine) which is higher in comparison to distribution of pain experienced during procedure (One to Eight) ( $P <0.001$ ).

Lower level of pain experienced during procedure might be because of several factors such as proper counseling of patients before start of procedure, precise anesthetic care, adequate analgesia technique, and fluoroscopic guided procedure technique and operator's expertise. Education level also had impact on preprocedural anxiety level of patients of both groups. Higher level of education was associated with lower level of anxiety in first timer group as well as in experienced group.

Similar studies in the past like Eralp Baser et al.<sup>8</sup> investigated effect of pre-procedural state-trait anxiety on pain perception and discomfort in women undergoing colposcopy for cervical cytological abnormalities. Study showed that women, who had a high level of state anxiety and with fewer past gynecological examinations were more likely to experience pain and discomfort during colposcopy. Duman et al.<sup>9</sup> evaluated pain and anxiety levels related to diagnostic punch biopsy in dermatology out patients. Study showed that Pain scores of patients with severe anxiety were higher than that of patients with moderate and no anxiety. Impact of pre-procedural anxiety levels on pain perception in patients undergoing office hysteroscopy was investigated by M.K. Kokanali et al.<sup>10</sup> Study results showed that pain perception during the procedure is higher in patients with higher preprocedural anxiety. In our study too, higher level of preprocedural anxiety was associated with higher level of pain perception. L Ebirim et al.<sup>11</sup> investigated factors responsible for pre-operative anxiety in elective surgical patients. Study result showed that only previous surgical treatment was associated with significantly lower levels of preoperative anxiety. Effect of anxiety and waiting time on patients' tolerance of upper endoscopy

on out-patients who underwent endoscopy was studied by Pontone et al.<sup>12</sup> It was concluded that higher levels of preprocedural anxiety was associated with a higher level of pain perception. Fathi M, Alavi SM, Joudi M et al.<sup>13</sup> investigated preoperative anxiety and its predisposing factors in a group of adult patients who were candidate for any kind of heart surgery. Result of this study showed that Widowed or divorced female patients were more prone to experiencing higher stages of anxiety. More over Higher income rates and better social support may decrease anxiety level. In our study too, patients with higher education level show lower level of preoperative anxiety. Tokmak et al.<sup>14</sup> investigated effect of pre-procedure anxiety levels on post-procedure pain scores in women undergoing hysterosalpingography. He concluded that there was a positive correlation between anxiety scores and post-procedure pain scores. In a Study by Yilmaz et al.<sup>15</sup>, effect of Pre-Procedure Anxiety on Pain Perception during first session of Shock Wave Lithotripsy was investigated. Their Study showed that the increased anxiety level made the procedure more painful.

In our study, patients undergoing interventional pain management were included. Depending up on their previous exposure history they were divided into two groups (First timer group/experienced group), so that effect of previous experience could be detected. More over in both groups pain scoring before and after procedure were noted. This was done to find out difference in patient's expectation for procedural pain and real pain experienced during procedure, later was amazingly low might be because of several factor including expert hands.

### Limitations

We did not study effect of socio-economic status and waiting time before procedure on preprocedural anxiety, preprocedural expected pain and pain experienced during procedure. We also did not study effect of any anxiolytic drug on preprocedural anxiety. Further study is needed in this field.

### Conclusions

Based on above study we concluded that previous experience of procedure significantly reduces preprocedural anxiety in patients undergoing interventional pain management while the patients undergoing interventional pain management for the first time shows high level of anxiety. Lower level of anxiety in experienced group was associated with lower level of preprocedural expected pain

and pain experienced during procedure. While higher level of preprocedural anxiety in first timer was associated with higher level of preprocedural expected pain and pain experienced during procedure. Education level also has impact on preprocedural anxiety. Patients having higher level of education showed lower level pre-procedural anxiety in patients of both groups.

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