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## PREOPERATIVE PAIN EFFECTS ACUTE POST-OPERATIVE PAIN OUTCOME

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## პრეოპერაციული ტკივილი გავლენას ახდენს მწვავე პოსტოპერაციული ტკივილის გამოსავალზე

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### რეზიუმე

კვლევა მიზნად ისახავდა პრეოპერაციული ქრონიკული ტკივილის გავლენის დადგენას მწვავე პოსტოპერაციული ტკივილის დონეზე, სიმძიმესა და გამოსავალზე. შედეგებმა აჩვენა, რომ პრეოპერაციული ქრონიკული ტკივილი მძიმე პოსტოპერაციული ტკივილის პროგნოზულ ფაქტორს წარმოადგენს და უკავშირდება ქრონიკული პოსტოპერაციული ტკივილის განვითარებას. ადეკვატური წინასაოპერაციო შეფასება უნდა იყოს პაციენტის ქირურგიული მოვლის განუყოფელი ნაწილი.

**Introduction:** Nearly 80% of patients experienced pain after surgery which was inadequately treated [1,2]. It may result in clinical and psychological changes that may increase the morbidity and mortality as well as the cost of treatment as a whole, in addition to decreasing the quality-of-life post-operatively [1]. Besides the type and approach of surgery, various other risk factors have been attributed to chronic postsurgical pain. Some of them are patient factors (including female gender, being a young adult, genetic predisposition, and psychosocial factors), preexisting patient conditions (for example, pain present preoperatively, and any preexisting painful conditions in other parts of the body), and perioperative factors (for instance, duration and type of surgery, extent of nerve damage intraoperatively, and severity and duration of acute postoperative pain) [3]. It is observed that up to 50% of patients may develop chronic post-operative pain including minor depression [4] and pain-related catastrophizing [5]. A distinct element of chronic post-surgical pain (CPSP) is related to bio-psychosocial factors [6,7]. Preoperative assessment of patients is crucial for identifying patients at high risk of poor outcomes of acute surgical intervention. The aim of the study was to determine implication of chronic pain in acute post-operative pain magnitude and severity and acute post-operative pain outcome.

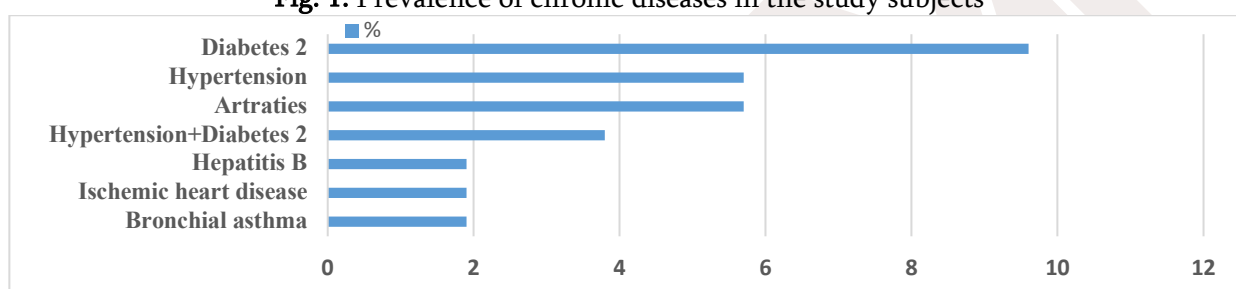
**Methods:** Cross-sectional survey was conducted in 4 surgical departments of a tertiary hospital in the capital city during May-June 2022. PAIN OUT post-operative pain questionnaire and IASP short questionnaire on chronic pain were employed with a minor modification. Convenient sample was selected using the selection criteria such as: age $\geq$ 18, first week, mainly, second and third days after operation. Patients' consent on participation was obtained prior to the interview by signing an informal consent form. Pain intensity was measured by numerical rating scale (NRS) during face-to-face interviews with patients. The study results were processed in the Microsoft Excel Program with the statistical significance at the level  $p\leq 0.05$ .

**Results and Discussion:** 52 patients meeting the inclusion criteria were enrolled. Socio-demographic profile of the patients is provided in Table 1.

Mean age was  $53.4\pm 15.1$ , 95%CI = 49.3-57.5, Median – 55, Range - 27-79. 16 patients had chronic diseases such as bronchial asthma, diabetes 2, hypertension and others (Fig.1)

**Table 1.** Patients' Socio-demographic characteristics

Gender	Abs.	%
Male	28	53.8
Female	24	46.2
Marital status		
Married	24	46.2
Unmarried	28	53.8
Age range		
20-29	3	5.8
30-39	8	15.4
40-49	11	21.2
50-59	11	21.2
60-69	10	19.2
70-79	9	17.3

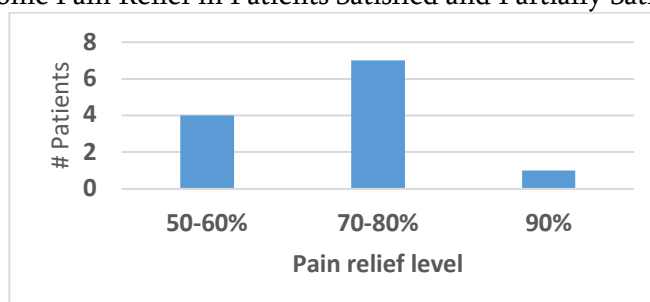
**Fig. 1.** Prevalence of chronic diseases in the study subjects

32 (61.5%) patients had history of chronic pain before undergoing operation, every third (31.3%) experienced chronic pain during or over the past 5 years (Table 2). Prevalence of chronic pain was significantly higher in females (62.5%; 95.0%CI = 46.2-78.8) than in mails (46.4%; 95.0%CI = 30.9-61.9). Over a half of the patients were unsatisfied with chronic pain treatment (Table 2) and had to refer to medical institutions for several times per year. The majority of the study subjects (84.4%) were over 50 years old and 59.4% of them were females. 21 patient experienced chronic pain from moderate to severe intensity at the admission into the hospital and continued taking prescribed medications for pain relief.

**Table 2.** Duration of Chronic Pain and Satisfaction with Pain Treatment

Duration in years	# patients	Referred to Medical Care	Satisfied with Treatment	Partly Satisfied with Treatment	Unsatisfied with Treatment
< 1 year	6	6			
1 year	11	11			
2-4 years	5	5			
≥5 years	10	10			
Total	32	32	3 – 9.4%	12 – 37.5%	17 – 53.1%

Over a half of the patients with chronic pain were unsatisfied with treatment of chronic pain. Of those who were satisfied with chronic pain treatment chronic pain relief level at the moment of the interview was over 50% (Fig. 2). Of 32 patients 12 (37.5%) suffered with unrelieved persistent chronic pain before undergoing operation.

**Fig. 2.** Level of Chronic Pain Relief in Patients Satisfied and Partially Satisfied with Treatment

Almost all study subjects experienced acute pain after surgery some or most of the time (prevalence of post-operative pain composed 88.5% (95.0% CI = 81.2-95.8). According to the patients' estimation, they experienced pain most of the time. Of those patients 15 (28.8%) had unrelieved chronic pain. The vast majority of the patients indicated the worst pain within 8-10 (NRS) they experienced since the surgery. Over a half of them had a score 10 – indicating extreme pain. The mean score was  $8.79 \pm 1.98$ , median – 9, mode 10, the minimal pain score was 5 for all subjects who had undergone different types of operation.

After pain treatment the majority of the patients experienced acute pain of similar intensity to that they had before the treatment. We agree with Tong J Gan [8] and others [9-12] that postoperative pain is not adequately managed in a significant proportion of patients. Moreover, it is estimated that approximately 50%-75% of patients have insufficient pain relief postoperatively [13,14], taking into account that acute post-operative pain prevalence varies by time after operation, type of surgery, pain treatments, etc. [11,12,15].

Based on our study results severity of acute post-operative pain does not depend on gender (chi-square 0.393, p-value 0.5307). Existence of chronic pain before surgery has no significant influence on severity of post-operative pain (OR=0.77; 95% CI 0.13-4.69). Likelihood of developing severe pain after surgery while having chronic pain is 0.4, however recent history of having chronic pain no longer than 2 years before surgery is most likely to be a predictive factor of post-operative pain severity (OR=6.5; 95% CI 1.38-30.68).

It was pointed out by several authors that poorly controlled acute pain after surgery has been consistently shown to be a predictive factor for the development of chronic pain [11,13]. Although clinical findings are inconsistent and sometimes controversial, some studies of local anesthetics and nonopioid analgesics have suggested potential benefits as preventive interventions [8]. In this regard it should be mentioned that the field of perioperative pain management lacks consensus about quality indicators for assessing pain management, which treatment targets to aim for and how to analyze them [16,17].

**Conclusion:** Recent history of chronic pain is a predictive factor of severe post-operative pain and is attributed to the development of chronic post-operative pain. Adequate preoperative assessment should be integral to patient care.

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#### **SUMMARY**

The study aimed to determine implication of chronic pain in acute post-operative pain magnitude and severity and acute post-operative pain outcome. The results showed that the recent history of chronic pain is a predictive factor of severe post-operative pain and attributes to the development of chronic post-operative pain.

Adequate preoperative assessment should be integral to surgical patient care.

**Keywords:** preoperative pain, postoperative pain, outcome

