

Comparison of preoperative and post operative pain management in cholecystectomy patients in tertiary care hospital: An observational study

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Abstract- Background: Research has shown that tramadol is better in management than diclofenac sodium for managing pain in postoperative cholecystectomy. However, it has been demonstrated that the risks of tramadol (a synthetic opioid) are harmful effects. Diclofenac sodium, with its favourable safety profile, may be useful in the management of pre-operative and post-operative pain, particularly of mild to moderate severity. In this study, we evaluated the preoperative and postoperative pain management in cholecystectomy at a tertiary care hospital. **Methods and Material:** It was a cross-sectional single centred observational study conducted at a tertiary care hospital in a developing country. A total of 72 patients above 18 years both male and female who were suffering from gallbladder stones were included and the patients were interviewed through a McGill pain questionnaire proved to be a satisfactory method of assessing preoperative and Postoperative pain and its management using different therapies. **Results:** The most patients fell between the ages of 41 and 60, respectively. In this analysis, 43 (59/17%) of recipients had laparoscopic surgery, compared to 29 (40.27%) who had open cholecystectomy surgery. A comparison of pain scores between diclofenac sodium and tramadol hydrochloride was done in our study according to criteria given in the McGill pain questionnaire, the average scores of sensory (SENS) were found to be 15.28 and 14.89, affective (AFF) was 6.42 and 6.36, evaluation (EVA) was found to be 1.50 and 1.56, whereas miscellaneous (MISC) was 6.08 and 5.75, the pain rating index (PRI(T)) (total) was 29.39 and 28.5, and lastly, present pain intensity (PPI) was found to be 1.25 and 1.28 at the time of discharge, Scores of p-values were found to be 0.099 for sensory and 0.004 for affective; 0.271 for evaluation and 0.722 for miscellaneous; 0.104 for pain rating index (total); and lastly, 0.868 for present pain intensity. **Conclusion:** The study concluded that tramadol is better in management than diclofenac sodium for managing pain in postoperative cholecystectomy. However, patients with tramadol management have a higher incidence of side effects (nausea/vomiting).

Index Terms- Cholecystectomy, Diclofenac Sodium, Pain, Tramadol

I. INTRODUCTION

Gallstones, commonly known as cholelithiasis, form in the gallbladder as a result of hardened digestive fluid build-up. Located directly behind the liver, the gallbladder is a small organ situated underneath the liver, the gallbladder. Biliary fluid, a gastro-intestinal fluid secreted in the small intestine, is stored in the gallbladder. [1]. Between 5.3% and 25% of the population is affected with cholelithiasis, according to clinical research studies conducted in Europe, North and South America, and Asia. [2,3]. Discomfort and complications are experienced by only around 20% of patients with cholelithiasis. There are usually no symptoms associated with this illness. In research done by Pimpale et al., stomach aches were shown to be the most common symptom of cholelithiasis in females in their fourth to fifth decade of life. Other risk factors for cholelithiasis include inheritance, inactivity, which is connected to metabolic syndrome, obesity, gallstones, dietary factors, and an increase in cholesterol production, among other comorbidities. Gender is the most common risk factor for cholelithiasis, and it also leads to metabolic syndrome symptoms in women, making it one of the risk variables that cannot be adjusted. [4]. Excess cholesterol production and saturation by hepatic cells, as well as inadequate gallbladder emptying or hypomotility, are the main causes of cholesterol gallstones. Due to enhanced hump production, Bilirubin may be found in larger amounts than usual in bile from pigmented gallstones. As a result, bilirubin may crystallize and form stones. [5,6]. It is rare for symptoms of cholelithiasis to be specific to the presence or absence of gallstones. Some symptoms that may occur include acid regurgitation, heartburn, belching, nausea, vomiting, bloating, stomach distension, chest pain, early satiety or fullness after food, and flatulence. [7]. The cystic duct or ampulla of Vater might experience visceral discomfort due to the impact of the stone, also known as microlithiasis. The gallbladder and biliary system enlarge and contract due to this illness. Visceral sensory neurons fire in response to

the intermittent elevation of gallbladder pressure. If the stones return to the gallbladder lumen, the common bile duct, or the duodenum via the ampulla, the pain will subside. When you palpate your abdomen, you may feel discomfort in the right upper quadrant (RUQ) and see jaundice as a symptom. Having a positive Murphy sign is also within the realm of possibility. In cases of cholangitis, the Charcot trinity of fever, RUQ pain, and jaundice should prompt prompt medical attention to prevent complications. [8]. Ultrasonography, a blood test, a physical examination, and a patient's medical history are the diagnostic tools used to confirm cholelithiasis. [9] The diagnosis of cholelithiasis requires the evaluation of many laboratory tests. A CBC can show it if the white blood cell count is elevated [10]. Several other tests are also part of the laboratory workup, such as those for liver function, lipase, amylase, urinalysis, pregnancy, and, in cases when symptoms of occult or substantial gastrointestinal bleeding are present, a stool guaiac test to rule out intestinal bleeding. [11]. Currently, ultrasonography remains the preferred method for diagnosing cholelithiasis. It is considered a fantastic method since, despite not invasiveness, lack of ionizing radiation, low cost, and excellent diagnostic accuracy, it may be utilized to examine almost all abdominal organs. [12] Among the many advantages of USG over other imaging modalities in the investigation of cholelithiasis, the capacity to detect a sonographic Murphy's sign—a dependable indicator of the condition with a sensitivity of 92%—was highlighted in the aforementioned prior work. When using ultrasonography to detect gallstones, a thickening of the gallbladder wall has a positive predictive value of 95% for diagnosing cholelithiasis. Cholelithiasis can be reliably diagnosed with an increased wall thickness of more than 3.5 mm. [13]. The use of ultrasonography (USG) can significantly increase the risk of gallstones, gallbladder enlargement, gallstone-causing edema, and pericholecystic fluid (fluid around the gallbladder). Color Doppler ultrasonography of the blood vessels may show acute inflammation, hyperaemic blood flow, and pericholecystic blood flow. Figure 1 shows that mobile echogenic foci casting posterior acoustic shadows are a common visual representation of USG results; also, a wall echo-shadow suggestion is visible in cases when gallstones are present in the gallbladder. Gallbladder distension (> 40 mm) is a hallmark of cholecystitis, which the evidence presented here shows may be present in this patient. [14].

II. Materials And Methods

A developing country's tertiary care hospital served as the site of this cross-sectional, single centred observational research. The study was approved by the institutional Ethics Review Committee, and all patients were asked to provide their informed permission. To determine the sample size, the RAOSOFT program was utilized. According to prior research, between seventy-five and eighty percent of people are aware of the possibility of postoperative discomfort. A 95% confidence interval was used to determine the sample size, which was 72. People with gallbladder stones, whether male or female and at least 18 years old were eligible to participate in the study. We did not include pregnant or breastfeeding individuals who had a history of adverse reactions to analgesics or who also suffered from co-occurring diseases such as chronic obstructive pulmonary disease, drug or alcohol addiction, coronary artery disease, or ischemic myocardial disease. We enrolled patients who fulfilled our inclusion criteria and were scheduled for a preoperative examination before major upper abdominal surgery. Before preoperative evaluation, one of the writers conducted in-depth interviews with each patient and had them fill out a questionnaire. The principal investigator took extra precautions to protect patient privacy by issuing each participant a unique code and keeping all data securely locked away.

III. Questionnaire

This research made use of the McGill Pain Questionnaire (MPQ), a tool for assessing the severity of pain in humans. It can track pain levels over time and show how well treatments are working. It has been translated into other languages and was developed by Dr. Melzack at McGill University in Montreal, Canada. Sections: (1) What Does Your Pain Feel Like? (2) How Does Your Pain Change with Time? (3) How Strong is Your Pain? Patients diagnosed with cancer, chronic pelvic pain, fibromyalgia, headaches, herniated intervertebral discs, ischemic muscular pain, low back pain, lumbago-sciatica, orthodontics/dental pain, postoperative complications, rheumatoid arthritis, trigeminal neuralgia, unusual facial pain, vulvar pain, and other conditions were included in the validation of the questionnaire. There are 78 words in the MPQ, and people are asked to identify the ones that they feel best to express pain. The next seven words are chosen from the following categories: pain descriptors (dimensions 1–10), emotional components of pain (dimensions 11–15), appraisal of pain (dimension 16), and miscellaneous (dimensions 17–20). From 0 (no pain) to 78 (extreme agony), scores are calculated by adding up the values linked with each word. Respondents' word choice may represent qualitative variations in suffering.

IV. STATISTICAL ANALYSIS

We used IBM's Statistical Package for the Social Sciences, version 29, to conduct all of our statistical analyses. For observations that could be categorized, percentages and frequencies were calculated. We estimated the mean and standard deviation. We used the chi-square test to look for statistically significant differences. As a threshold for significance, a P-value less than or equal to 0.05 was used.

V. RESULT

A total of 72 patients were included in this study, various demographic variables were observed and summarized in Table 1.

TABLE 1: Various demographic and clinical factors of patients enrolled were categorized.

VARIABLES		FREQUENCY (n)	PERCENTAGE (%)
Age Groups			
21 to 40		22	30.55%
41 to 60		28	38.88%
61 to 80		21	29.16%
81 to 100		01	1.38%
Gender			
Male		15	20.13%
Female		57	79.16%
Dimension of kidney stone (mm) on USG			
1-5		10	3.88%
6-10		14	19.44%
11-15		28	38.88%
16-20		14	19.44%
21-25		5	6.94%
26-30		1	1.388%
Type of Surgery			
Laparoscopic		43	59.17%
Open Cholecystectomy		29	40.27%
Bilirubin Grades According to CTCAE			
Grades	Limit		
Normal	<1 mg/dl	56	77.77%
Grade 1	>1-1.5 mg/dl	06	8.33%
Grade 2	>1.5-3.0 mg/dl	03	4.16%
Grade 3	>3.0-10.0 mg/dl	07	9.72%
Diet			
Non-Vegetarian		43	59.72%
Vegetarian		29	40.27%
Observed side effects			
Dyspepsia		39	54.16%
Nausea		42	58.3%
Vomiting		07	9.72%
Fever		49	68%
Jaundice		8	11.11%
Pruritis		5	6.944%
Basis of alcohol consumption			
Alcoholic		11	15.27%
Non-alcoholic		61	84.72%
Economic status			
Poor		43	59.72%
Middle class		20	27.77%
Below the poverty line		7	9.72%
Rich		2	2.77%

TABLE 2: Evaluation of safety between diclofenac sodium and tramadol hydrochloride

Drug	Side effects	Complications
Diclofenac	No	-----
Tramadol	Yes	Nausea/Vomiting

A comparison was done between Tramadol and diclofenac in terms of complications present. It was found that there were no complications seen in the case of Diclofenac but with Tramadol Nausea and vomiting were reported.

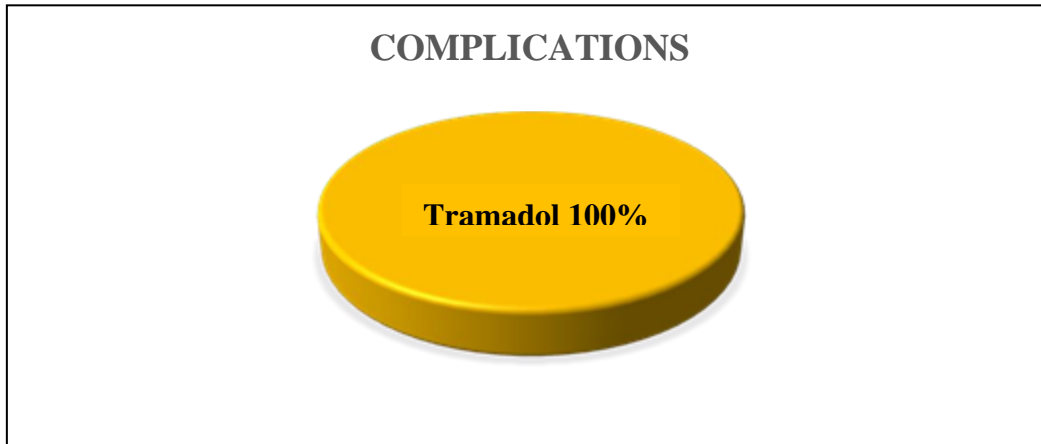


Fig.2. Distribution of drugs based on complications

TABLE 3: Comparison of pain score in overall patients during pre and post-operative

VARIABLES	PRE-OPERATIVE		POST-OPERATIVE	
	MEAN	SD	MEAN	SD
SENS	25.60	± 6.719	15.08	± 7.065
AFF	9.35	±2.563	6.39	±1.327
EVA	2.75	±1.045	1.53	±0.649
MISC	9.47	±2.969	5.92	±1.402
PRI(T)	47.63	±12.092	28.94	± ±8.473
PPI	2.99	±1.055	1.26	±0.581

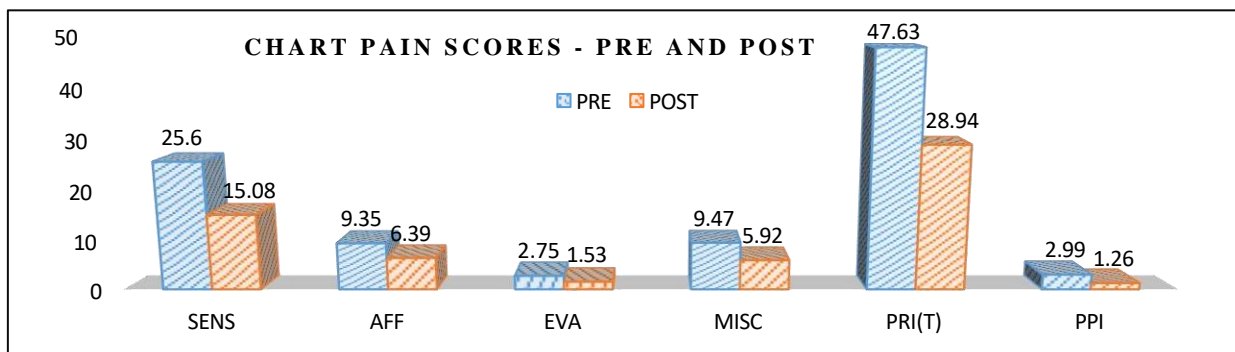
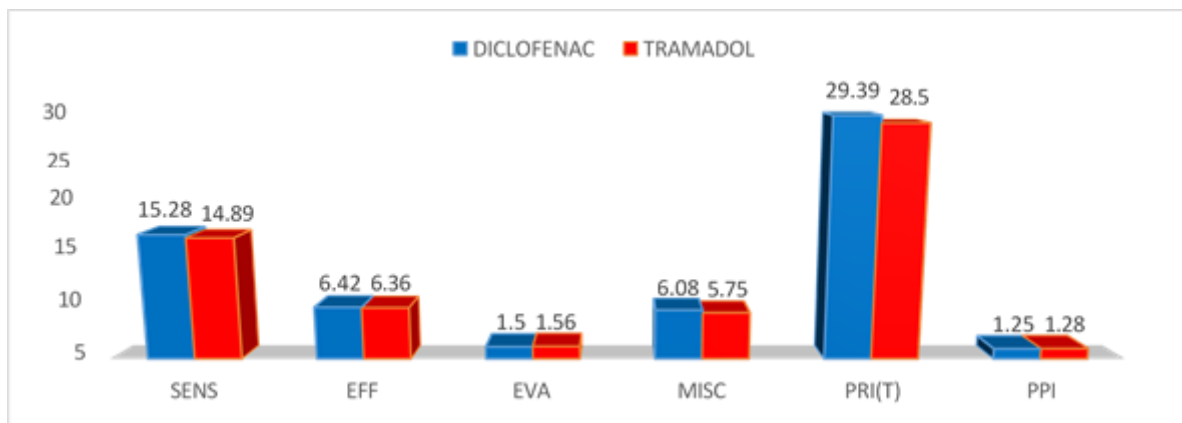


Fig.3. Comparison of pain score in overall patients during pre- and post-operative

The details of the pain score were obtained at the time of admission and at the time of discharge for 72 patients that were in our study, the average scores were summarized, according to the dimensions given in the McGill pain questionnaire. The pain rating Index found the highest variation during admission and at the time of discharge for 72 patients. Whereas the least variation was found in the Evaluation.

TABLE 4: Comparison of pain score between diclofenac sodium and tramadol hydrochloride

VARIABLES	DICLOFENAC SODIUM		TRAMADOL HYDROCHLORIDE		P VALUE
	MEAN	SD	MEAN	SD	
SENS	15.28	± 6.466	14.89	± 7.704	0.099
AFF	6.42	±1.251	6.36	±1.417	0.004**
EVA	1.50	±0.655	1.56	±0.652	0.271
MISC	6.08	±1.538	5.75	±1.251	0.722
PRI(T)	29.39	±7.538	28.5	±9.404	0.104
PPI	1.25	±0.604	1.28	±0.566	0.868



The details of the pain scores obtained at the time of discharge from the McGill Pain questionnaire in cholelithiasis patients were aggregated, and average scores were summarized According to the criteria given in the McGill Pain questionnaire. The highest variations were found in the Pain Rating Index. Where the least variation was found in the Present Pain Index. The highest score was found to be in PPI, whereas the lowest score was found to be in Affective. Hence, we can conclude that in terms of effectiveness, Tramadol was comparatively better than diclofenac.

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VI. DISCUSSION & CONCLUSION

DISCUSSION:

THIS STUDY WAS CONDUCTED TO COMPARE THE PREOPERATIVE AND POSTOPERATIVE PAIN MANAGEMENT IN CHOLECYSTECTOMY AT A TERTIARY CARE HOSPITAL. THE GALLBLADDER IS REMOVED THROUGH SURGERY DURING A CHOLECYSTECTOMY. IT'S A POPULAR THERAPY FOR SYMPTOMATIC GALLSTONES AND OTHER GALLBLADDER PROBLEMS. CHOLECYSTECTOMY CAN BE PERFORMED LAPAROSCOPICALLY OR OPEN CHOLECYSTECTOMY. ADMINISTRATION OF TRAMADOL HYDROCHLORIDE AND DICLOFENAC SODIUM WAS CARRIED OUT TO REDUCE THE PAIN DURING CHOLECYSTECTOMY.

FEMALES WERE RESPONSIBLE FOR 79.16% (57 OUT OF 72) OF THE CHOLELITHIASIS IN THE STUDY, WHEREAS MEN WERE RESPONSIBLE FOR 20.84% (15 OUT OF 72), INDICATING THAT FEMALES DOMINATE MALES. IN A STUDY ACCORDING TO

BHATTACHARYA, 71.4% WERE FEMALE AND 28.6% WERE MALE. TAMHANKAR ET AL. DISCOVERED A SIMILAR SEX PREDOMINANCE IN FAVOR OF FEMALES. SHARMA'S STUDY FOUND THAT 30% OF PATIENTS WERE MALE AND 70% WERE FEMALE, WHEREAS THAMIL SELVI ET AL. DISCOVERED THAT 20.5% OF PATIENTS WERE MALE AND 79.5% WERE FEMALE.[17].

IN OUR STUDY, 28 OF THE 72 CHOLELITHIASIS PATIENTS WERE FOUND TO BE BETWEEN THE AGES OF 41 AND 60, 22 BETWEEN THE AGES OF 21 AND 40, 21 BETWEEN THE AGES OF 61 AND 80, AND ONE BETWEEN THE AGES OF 81 AND 100. THE MOST PATIENTS FELL BETWEEN THE AGES OF 41 AND 60. SIMILAR RESEARCH WAS CONDUCTED IN NIGERIA BY OLOKOBA ET AL. IN THE UNITED STATES, 20,000,000 CASES OF GALLSTONES ARE REPORTED ANNUALLY, AND IN THE UNITED KINGDOM, THE INCIDENCES OF GALLSTONES ARE 8% AND 20% FOR PEOPLE OVER 40 AND 60% FOR PEOPLE OVER 60 YEARS.[18]

INDIVIDUALS SUFFERING FROM 11-15 MM-SIZED GALLBLADDER STONES WERE THE MOST NUMEROUS IN OUR INVESTIGATION, ENCOMPASSING 28 PERSONS; HOWEVER, THE MOST SIGNIFICANT STONE SIZE RECORDED WAS BETWEEN 26-30 MM AND WAS ONLY LOCATED IN ONE PATIENT. WHILE NARANG ET AL. CONDUCTED RESEARCH IN INDIA, OUT OF 185 GALL BLADDERS WITH STONES, 21 INSTANCES (11.35%) HAD STONE SIZE LESS THAN 1 CM, 109 (58.92%) HAD STONE SIZE BETWEEN 1-1.9 CM, 45 (24.32%) HAD STONE SIZE BETWEEN 2-2.9 CM, AND THE REMAINING 10 (5.41%) HAD STONE SIZE GREATER THAN 3 CM. THE LARGEST STONE MEASURED WAS 4.0 CM. GALL BLADDER CANCER PATIENTS WERE MORE LIKELY TO DEVELOP NUMEROUS STONES, ACCORDING TO VITETTA ET AL. AND HSING ET AL. DOMEYER ET AL. CONCLUDED THAT SOLITARY GALLSTONES WERE THE BEST PREDICTORS OF SEVERE INFLAMMATION. KHANNA ET AL. FOUND NO EVIDENCE OF A LINK BETWEEN THE TWO IN THEIR DIFFERENT RESEARCH.[19]

IN THIS ANALYSIS, 43 (59/17%) OF RECIPIENTS HAD LAPAROSCOPIC SURGERY, COMPARED TO 29 (40.27%) WHO HAD OPEN CHOLECYSTECTOMY SURGERY; LAPAROSCOPIC SURGERY WAS CONSIDERABLY MORE PREVALENT IN THE STUDY. PIMPAL R ET AL. CONDUCTED SIMILAR RESEARCH IN WHICH ALL PATIENTS (100%) HAD SURGERY. LAPAROSCOPIC CHOLECYSTECTOMY WAS PERFORMED ON 77.17% OF PATIENTS, WHEREAS OPEN CHOLECYSTECTOMY WAS PERFORMED ON 20.65%.

THE INCIDENCE OF CONVERSION FROM LAPAROSCOPIC TO OPEN CHOLECYSTECTOMY WAS AROUND 9.6% OF ALL ATTEMPTED LAPAROSCOPIC CASES (6 OUT OF 62). SCHLUMPF ET AL. FOUND A 7% CONVERSION RATE IN PREVIOUS INVESTIGATIONS. OUR FINDINGS MIRRORED THOSE OF A STUDY OF 376 PATIENTS CONDUCTED BY FAJARDO ET AL. TO ASSESS THE COST-EFFECTIVENESS OF LAPAROSCOPIC AND CHOLECYSTECTOMY IN THE COLOMBIAN POPULATION.[20] FEVER WAS THE MOST COMMON COMPLICATION IN OUR STUDY, WITH 49 PATIENTS (68%) SUFFERING FROM FEVER, 42 PATIENTS (58.3%) EXPERIENCING NAUSEA, 39 PATIENTS (54.16%) RECOVERING FROM DYSPEPSIA, 8 PATIENTS (11.11%) SUFFERING FROM JAUNDICE, 7 PATIENTS (9.72%) VOMITING, AND 5 PATIENTS (6.944%) HAVING PRURITIS AT THE TIME OF ADMISSION. A SIMILAR STUDY WAS CONDUCTED IN MAHARASHTRA BY AKHTAR ET AL. ASSOCIATED SYMPTOMS WITH CHOLELITHIASIS WERE ABDOMINAL PAIN, WHICH WAS OBSERVED IN ALL PATIENTS, DYSPEPSIA, WHICH WAS OBSERVED IN 61 PATIENTS, FOLLOWED BY THE PRESENTATION OF GI SYMPTOMS LIKE NAUSEA IN 51 PATIENTS, AND VOMITING IN 40 PATIENTS. FEVER WAS OBSERVED IN 19 PATIENTS (20.65%), AND JAUNDICE WAS OBSERVED IN 16 PATIENTS (17.40%), 6 OF WHOM (6.52%) REPORTED PRURITUS. VOMITING WAS SPONTANEOUS AND PRIMARILY HAPPENED DURING PAIN BOUTS, AS GANEY ET AL. OBSERVED.[21]

IN THIS STUDY, 59.72% (43 OUT OF 72) OF THE PATIENTS ATE A MIXED DIET (PREDOMINANTLY NON-VEGETARIAN DIET), WHEREAS THE REMAINING 40.27% (29 OUT OF 72) CONSUMED A VEGETARIAN DIET. NON-VEGETARIANS WERE FOUND TO HAVE CHOLELITHIASIS MORE FREQUENTLY THAN VEGETARIANS. THE REASON FOR THIS MIGHT BE EXCESSIVE PROTEIN AND FAT CONSUMPTION. THE FINDINGS WERE COMPARABLE TO THOSE OF MASKEY ET AL.'S 1990 AD RESEARCH IN NEPAL, WHICH REVEALED THAT THOSE WHO CONSUMED MORE FAT AND PROTEIN HAD A HIGHER INCIDENCE OF CHOLELITHIASIS. SEVERAL STUDIES HAVE LOOKED AT CALORIE INTAKE, CHOLESTEROL, FATTY ACIDS, FIBER, CARBS, VITAMINS AND MINERALS, AND ALCOHOL USE AS POTENTIAL RISK FACTORS FOR GALLSTONE DEVELOPMENT.[22]

A COMPARISON WAS DONE BETWEEN TRAMADOL AND DICLOFENAC IN TERMS OF COMPLICATIONS PRESENT. IT WAS FOUND THAT THERE WERE NO COMPLICATIONS SEEN IN THE CASE OF DICLOFENAC SODIUM BUT WITH TRAMADOL HYDROCHLORIDE NAUSEA AND VOMITING WERE REPORTED. A SIMILAR STUDY WAS DONE BY KASHEFI ET AL. IN IRAN THEY FOUND THAT THE RATE OF EMETIC COMPLICATIONS WAS HIGHER IN THE TRAMADOL GROUP, WHICH COULD BE A LIMITING FACTOR FOR THE ADMINISTRATION OF TRAMADOL AS PRE-EMPTIVE THERAPY.[23]

IN OUR STUDY, THE DETAILS OF THE PAIN SCORE WERE OBTAINED AT THE TIME OF ADMISSION AND AT THE TIME OF DISCHARGE FOR 72 PATIENTS, ACCORDING TO THE DIMENSIONS GIVEN IN THE MCGILL PAIN QUESTIONNAIRE. THE PAIN RATING INDEX FOUND THE HIGHEST VARIATION DURING ADMISSION AND AT THE TIME OF DISCHARGE FOR 72 PATIENTS. WHEREAS THE LEAST VARIATION WAS FOUND IN THE EVALUATION.

HAQUE ET AL. CONDUCTED A SIMILAR TRIAL IN WHICH 26 PATIENTS WHO GOT ANALGESICS POSTOPERATIVELY (GROUP A) REPORTED NO POST-EXTRACTION DISCOMFORT AT '0' HOUR WHEREAS ONLY 3 HAD SEVERE PAIN. HOWEVER, IN GROUP B,

WHICH GOT ONLY PREOPERATIVE ANALGESICS, 10 PATIENTS REPORTED NO DISCOMFORT WHILE 5 EXPERIENCED SIGNIFICANT PAIN. THE TOTAL NUMBER OF TIMES THE PAIN WAS REPORTED BY PATIENTS IN GROUP A WAS LOWER THAN THAT OF GROUP B BASED ON THE CUMULATIVE AND MONTHLY EVALUATION OF PAIN TILL 56 HOURS. ONLY 9 PATIENTS IN GROUP A REPORTED SEVERE PAIN, BUT 18 PATIENTS IN GROUP B EXPERIENCED SEVERE PAIN. HOWEVER, NO SIGNIFICANT DIFFERENCE ($P = 0.151$) WAS SEEN BETWEEN PRE- AND POST-OPERATIVELY TREATED GROUPS IN TERMS OF PREOPERATIVE EXTRACTION PAIN MANAGEMENT AFTER 56 HOURS.[24]

A COMPARISON OF PAIN SCORES BETWEEN DICLOFENAC SODIUM AND TRAMADOL HYDROCHLORIDE WAS DONE IN OUR STUDY ACCORDING TO CRITERIA GIVEN IN THE MCGILL PAIN QUESTIONNAIRE, THE AVERAGE SCORES OF SENSORY (SENS) WERE FOUND TO BE 15.28 AND 14.89, AFFECTIVE (AFF) WAS 6.42 AND 6.36, EVALUATION (EVA) WAS FOUND TO BE 1.50 AND 1.56, WHEREAS MISCELLANEOUS (MISC) WAS 6.08 AND 5.75, THE PAIN RATING INDEX (PRI(T)) (TOTAL) WAS 29.39 AND 28.5, AND LASTLY, PRESENT PAIN INTENSITY (PPI) WAS FOUND TO BE 1.25 AND 1.28 AT THE TIME OF DISCHARGE, SCORES OF P-VALUES WERE FOUND TO BE 0.099 FOR SENSORY AND 0.004 FOR AFFECTIVE; 0.271 FOR EVALUATION AND 0.722 FOR MISCELLANEOUS; 0.104 FOR PAIN RATING INDEX (TOTAL); AND LASTLY, 0.868 FOR PRESENT PAIN INTENSITY. THE HIGHEST VARIATIONS WERE FOUND IN THE PAIN RATING INDEX. WHERE THE LEAST VARIATION WAS FOUND IN THE PRESENT PAIN INDEX. THE HIGHEST SCORE WAS FOUND TO BE IN PPI, WHEREAS THE LOWEST SCORE WAS FOUND TO BE IN AFFECTIVE. HENCE, WE CAN CONCLUDE THAT IN TERMS OF EFFECTIVENESS, TRAMADOL HYDROCHLORIDE WAS COMPARATIVELY BETTER THAN DICLOFENAC SODIUM.

ALTHOUGH THE DEGREE OF POST-OPERATIVE PAIN LESSENS OVER TIME, IT REMAINS A SIGNIFICANT CONCERN FOLLOWING SURGICAL PROCEDURES BECAUSE A DELAY IN MANAGING POST-OPERATIVE PAIN CAN LEAD TO SERIOUS PSYCHOLOGICAL AND PHYSICAL PROBLEMS. DIFFERENT FORMS OF ANALGESICS HAVE BEEN USED FOR A LONG TIME, AND DIFFERENT REGIMENS AND COMBINATIONS ARE BEING EMPLOYED IN OUR HOSPITALS. BECAUSE OF ITS ACCESSIBILITY, LOW COST, SAFETY, AND DECENT EFFICACY, DICLOFENAC SODIUM INJECTION HAS BECOME POPULAR IN OUR PRACTICE. TRAMADOL IS UTILIZED ON A SMALLER SCALE AND IS OFTEN RECOMMENDED UNDER CLOSE MEDICAL SUPERVISION. IN THE CURRENT INVESTIGATION, THE EFFICACY OF THE TWO MEDICATIONS WAS ASSESSED USING A PAIN SCORE (THE PERCENTAGE OF PAIN REDUCTION WAS 54.6%).

THE FIRST GROUP OF PATIENTS GOT 75MG OF DICLOFENAC SODIUM (IM) IMMEDIATELY FOLLOWING SURGERY, WHICH RESULTED IN A CONSIDERABLE REDUCTION IN PAIN INTENSITY (THE PERCENTAGE OF PAIN REDUCTION WAS 54.6%). THIS IS CONSISTENT WITH JUNG Y'S CLAIM THAT THE ANALGESIC EFFECT OF NSAIDS GIVEN PREOPERATIVELY IS NO LONGER HELPFUL FOR POSTOPERATIVE PAIN, AND THAT POSTOPERATIVE ANALGESICS GIVEN BEFORE PAIN DEVELOPS ARE APPROPRIATE FOR POSTOPERATIVE ANALGESIA. TUZUNER'S 2007 STUDY, ON THE OTHER HAND, FOUND THAT PREOPERATIVE DICLOFENAC SUCCESSFULLY REDUCED POSTOPERATIVE OPIOID USAGE. THESE FINDINGS MAY SUPPORT THE WIDESPREAD USE OF DICLOFENAC; HOWEVER, THE DOSE SHOULD BE REPEATED EVERY 4-6 HOURS. ACCORDING TO THE PRESENT STUDY, THE AVERAGE DURATION OF ACTION IS 4.25 HOURS UNTIL THE PAIN IS ENTIRELY EASED.[25]

OZALEVLI MEHMET DISAGREED, CONCLUDING THAT MORPHINE PROVIDED GREATER POSTOPERATIVE ANALGESIA BUT WAS LINKED WITH A HIGHER INCIDENCE OF NAUSEA THAN TRAMADOL. BRODNER ET AL. STUDIED 196 CASES. NONOPIOID ANALGESICS AND DICLOFENAC SODIUM PERFORMED EQUALLY WELL. WHEN COMPARED TO DICLOFENAC SODIUM, TRAMADOL HYDROCHLORIDE DECREASED SURGICAL PAIN [26].

HOWEVER, IN THIS PRESENT STUDY, THE TRAMADOL HYDROCHLORIDE GROUP SHOWED A BETTER EFFICACY AS COMPARED TO THE DICLOFENAC SODIUM GROUP FOR MOST OF THE FOLLOW-UP INTERVALS BEING STUDIED BOTH THE GROUPS HAD PAIN SCORES INDICATIVE OF MILD NATURE OF PAIN (MCGILL PAIN QUESTIONNAIRE).

CONCLUSION:

THE STUDY CONCLUDED THAT TRAMADOL IS BETTER IN MANAGEMENT THAN DICLOFENAC SODIUM FOR MANAGING PAIN IN POSTOPERATIVE CHOLECYSTECTOMY. HOWEVER, PATIENTS WITH TRAMADOL MANAGEMENT HAVE A HIGHER INCIDENCE OF SIDE EFFECTS (NAUSEA/VOMITING). ANTIEMETICS ARE FREQUENTLY USED AS REGULAR ADJUVANTS TO REDUCE THIS ADVERSE EFFECT. SO, THE ADJUVANT MEDICATION RAISES THE TOTAL COST OF TRAMADOL HYDROCHLORIDE. FEAR OF DRUG DEPENDENCE AMONG PATIENTS IS A MAJOR FACTOR RESTRICTING TRAMADOL USE AMONG NON-MEDICAL GRADUATES. IN DISTANT HEALTH SECTORS, THERE ARE FURTHER CONCERNS REGARDING RESPIRATORY DEPRESSION AND SEVERE HYPOTENSION, WHICH LIMIT THE DRUG'S USAGE.

HOWEVER, IT HAS BEEN DEMONSTRATED THAT THE RISKS OF TRAMADOL (A SYNTHETIC OPIOID) ARE HARMFUL EFFECTS. DICLOFENAC SODIUM, WITH ITS FAVORABLE SAFETY PROFILE, MAY BE USEFUL IN THE MANAGEMENT OF PRE-OPERATIVE AND POST-OPERATIVE PAIN, PARTICULARLY OF MILD TO MODERATE SEVERITY. EVEN IN THE MAJORITY OF SITUATIONS, LAPAROSCOPIC CHOLECYSTECTOMY IS A POSSIBLE AND SAFE SURGERY. LAPAROSCOPIC CHOLECYSTECTOMY PERFORMED BETTER THAN OPEN CHOLECYSTECTOMY.

THE MCGILL PAIN QUESTIONNAIRE PROVED TO BE A SATISFACTORY METHOD OF ASSESSING PREOPERATIVE AND POSTOPERATIVE PAIN AND ITS MANAGEMENT USING DIFFERENT THERAPIES. MOREOVER, PAIN MANAGEMENT IN CHOLECYSTECTOMY PATIENTS OF PREOPERATIVE AND POSTOPERATIVE NEEDS TO BE STUDIED.

APPENDIX

Appendices, if needed, appear before the acknowledgment.

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The preferred spelling of the word “acknowledgment” in American English is without an “e” after the “g.” Use the singular heading even if you have many acknowledgments.

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