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Research Article

Evaluation of Postoperative complaints and satisfaction status of patients after undergoing laparoscopic cholecystectomy at a teaching hospital of Pakistan

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This study was performed to evaluate the complaints of patients during first 24 postoperative hours and the satisfaction status of patients after undergoing laparoscopic cholecystectomy (LC) in surgical units of Bahawal Victoria Hospital. Methodologically this prospective cross-sectional study was performed using a structured questionnaire containing 10-items, for a period of 6 months (Nov 2013-Apr 2014). Subjects were selected via convenience sampling technique and IBM SPSS® (v. 21) was used for statistical analysis. In total n=127 patients undergone laparoscopic cholecystectomy during this study period. Male to female ratio was 1:3.70. Mean age of patients was 44.49 years (±15. 33). 86.61% patients were below 60 years of age. Every patient was suffering from mean 2.09 complaints. Reported complaints were abdominal pain (32.71%), shoulder pain (24.06%), headache (18.80%) and fatigue (24.40%). A p-value of less than 0.05 was observed for pain complaints between gender variables. Satisfaction scale revealed that 64.6% of patients were satisfied from behavior of health professionals and 75.6% were satisfied with the treatment provided. However, 70.9% patients were unsatisfied from hospital facilities. Though LC is an advanced procedure still numerous patients were suffering from different unprivileged postoperative complaints. In western countries LC is performed as an ambulatory procedure, but still being practiced as an inpatient procedure in Pakistan. More research by multidisciplinary team on multimodal pain management is required for making cost-effective interventions that will decrease pain complaints and escalate the satisfaction status of patients.

Keywords: Cholelithiasis, Laparoscopic, Cholecystectomy, Pain, Shoulder Pain, Postoperative Pain, Patient Satisfaction.

1. INTRODUCTION

Cholelithiasis (CTS) is the blockade of the gallbladder caused by gallstones (Muhammad Naeem et al., 2012). It is a common, well known, very expensive and highly prevalent disease worldwide (Bodmer M, Brauchli YB, Krahenbuhl S, Jick SS, & Meier CR, 2009). CTS was treated earlier with an open cholecystectomy technique for over 100 years (Alexandros Polychronidis, Prodromos Laftsidis, Anastasios Bounovas, & Constantinos Simopoulos, 2008). But on a day of March 1987, Philippe Mouret performed first ever laparoscopic cholecystectomy on a woman patient who was suffering from painful pelvic adhesions in Lyon, France and modernized the world (Mouret Philippe, 1996). Mouret repeated Laparoscopic cholecystectomy (LC) procedure 15 times during 1987 to validate the reproducibility and effectiveness of the procedure (Alexandros Polychronidis et al., 2008). This method became famous speedily as a minor surgical procedure (Ljiljana Gvozdenović et al., 2011). More benefits and less postoperative complications after LC made it a Gold Standard treatment for CTS in 1992 (Tacchino R, Greco F, & D., 2009). Different types of complaints like pain, fatigue and impaired functioning are major initial postoperative complications that may persist for a longer period of time and delays patients return to usual activities (Helena I Rosén, Ingrid HE Bergh, Berit M Lundman, & Lena B Mårtensson, 2010). Pain always persisted as the most noticeable complaint of

patients after surgical procedures (Rosén H, Lauzon Clabo LM, & Mårtensson L, 2009). Although advancements occurred in medicine, but still effective pain management is appearing as a big encounter after LC (Bisgaard T, Kehlet H, & Rosenberg J, 2001). Just like developed countries CTS is equally affecting Pakistani people. Unfortunately, data available on the prevalence of CTS and cholecystectomy from Pakistan is still inadequate. A lot of patients are admitted to Pakistani hospitals annually with symptomatic cholelithiasis for the purpose of undergoing LC so a study was performed to evaluate the frequency of cholecystectomy and the satisfaction status of patients in a teaching hospital of Pakistan.

2. MATERIAL AND METHODS

A prospective cross-sectional questionnaire based study was performed for a period of 6 months at 4 surgical units of Bahawal Victoria Hospital (BVH). BVH is a 1400 bedded tertiary care teaching hospital in Bahawalpur located in the southern region of Punjab, Pakistan. Patients admitted in BVH for the purpose of undergoing laparoscopic cholecystectomy from November 2013 to April 2014 were included in the study in light of the following criteria;

2.1 Inclusion criteria

- Patient should be equal or greater than 18 years of age.
- Patient should be diagnosed with symptomatic cholelithiasis.
- Patient should be admitted for the purpose of undergoing laparoscopic cholecystectomy.

2.2 Exclusion criteria

- Pregnant women
- Children

2.3 Study tool

A questionnaire was designed by the authors that consisted of three sections. First section contained three questions related to patient demographics (age, gender and residence). Second section contained four close-ended questions related to postoperative complaints of patients. Responses were measured using nominal variables [yes/no]. Third section contained three questions that were designed as 4-item Likert-scale for measurement of patient satisfaction (Responses were measured as Strongly Disagree, Disagree, Agree or Strongly Agree).

2.4 Data collection and Statistical analysis

Patients were approached within first 24 postoperative hours and questioned by the authors using a standard questionnaire. Study variables were coded and analyzed using IBM SPSS® (version 21). Descriptive statistics was used to describe frequency, percentage, mean and standard deviation of selected variables. Cross tabulation, chi square test and Mann Whitney U test were applied to check the association across and within variables. A p-value of less than 0.05 was considered statistically significant.

3. RESULTS

During this study period n=127 patients with Cholelithiasis (CTS) were admitted and undergone LC in surgical units of Bahawal Victoria Hospital. According to patients register total 1031 surgeries were performed at surgical units of BVH during this study period. A prevalence of 12.54% was observed for CTS over total surgeries. Mean age of admitted patients was 44.49 years with a standard deviation of 15.33. A significant difference was observed within gender variable because 78.7% of admitted patients were females ($p>0.050$). Observed male to female ratio was 1:3.70. Categorical variables were applied on patients' age and major targeted age was identified. The majority of patients diseased with CTS were aged between 18-40 years. See (Table 1) and (Figure 1a). Overall, 110 patients affected with CTS were under 60 years of their age ($p \geqslant 0.001$) (Figure 1b). Most of the patients were resident of Bahawalpur (n=71), Lodhran (n=12), Bahawalnagar (n=10), Rahim Yar Khan (n=6), Multan (n=5), Yazman (n=4) and Vihari (n=3) while the remaining patients belonged to other peripheral cities. See (Table 2) and (Figure 2). Complaints of patients were evaluated by applying cross tabulation and chi square test for computing responses. A significant difference was observed in patient response regarding abdominal pain and headache within gender variable. A total of 266 complaints were reported by 127 patients. Every patient was suffering from a mean of 2.09 complaints (Figure 3). 68.5% of patients reported abdominal pain, 50.4% reported shoulder pain, 39.4% reported headache and 51.2% reported fatigue (Table 3). Categorical distribution was performed by comparing patient complaints with different age groups (Table 4). The Mann Whitney U test was also applied to check the variability within gender and patient complaints. A significant difference ($p \leqslant 0.05$) was observed in pain complaints between both genders was observed

in 3 variables (shoulder pain, headache and fatigue) while abdominal pain was almost equally complained by both gender (Table 5). Satisfaction scale revealed that 64.6% of patients were satisfied from behavior of health professionals and 75.6% were satisfied with the treatment provided. On the other hand 70.9% patients reported inadequate facilities in hospital (Table 6).

Table 1: Age of Patients

Age (years)	Frequency (%)
18-40	61 (48.03%)
41-60	49 (38.58%)
61-80	16 (12.60%)
>80	1 (0.787%)

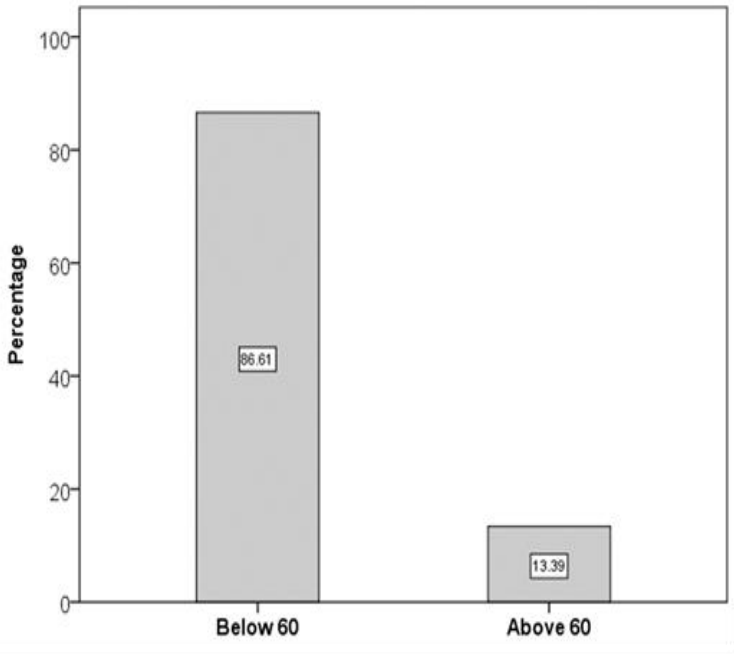

Figure 1b: Highly affected age

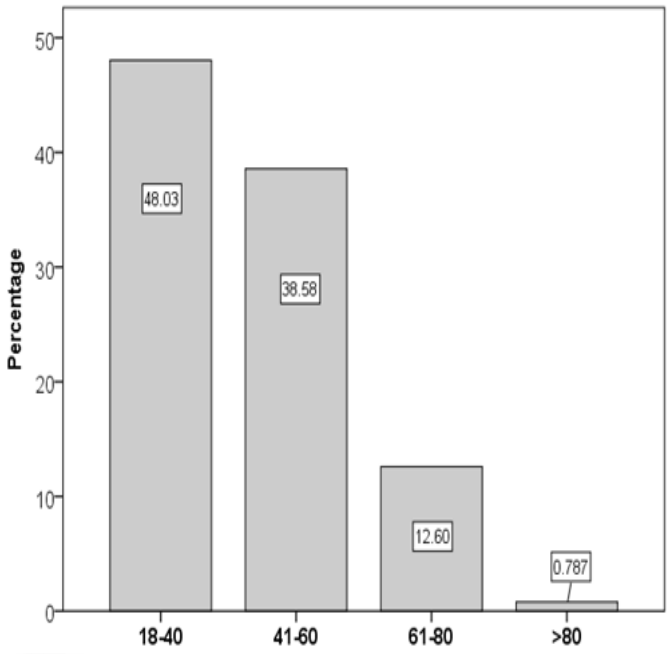

Figure 1a: Age Distribution

Table 2: Residence of Patients

Gender	City								Total	p- value
	BWP	LOD	BWN	RYK	MTN	YZM	VHR	Other		
Female	56	12	6	5	5	1	3	12	100	0.041*
Male	15	-	4	1	-	3	-	4	27	
Total	71	12	10	6	5	4	3	16	127	

BWP=BAHAWALPUR, BWN=BAHAWALNAGAR, RYK=RAHIM YAR KHAN, LOD=LODHRAN, MTN=MULTAN, YZM= YAZMAN, AND VHR=VIHARI. *p-value of less than 0.05 shows significant difference between variables.

Table 3: Frequency of Patient Complaints

	Response		p-value
	Yes	No	
Abdominal Pain	87 (68.5%)	40 (31.5%)	0.001*
Shoulder Pain	64 (50.4%)	63 (49.6%)	0.929
Headache	50 (39.4%)	77 (60.6%)	0.017*
Fatigue	65 (51.2%)	62 (48.8%)	0.788

Chi Square test was used to analyse level of significance. *p-value of less than 0.05 was considered significant.; n =127.

Table 4: Categorical Distribution of Complaints in age groups

		Age group			
		18-40 year	41-60 year	61-80 year	>80 year
Abdominal Pain	Yes	43 (49.4%)	35 (40.2%)	9 (10.3%)	-
	No	18 (45%)	14 (35%)	7 (17.5%)	1 (2.5%)
Shoulder Pain	Yes	29 (45.3%)	27 (42.2%)	8 (12.5%)	-
	No	32 (50.8%)	22 (34.9%)	8 (12.7%)	1 (2.5%)
Headache	Yes	24 (48%)	18 (36%)	8 (16%)	-
	No	37 (48.1%)	31 (40.3%)	8 (10.4%)	1 (1.3%)
Fatigue	Yes	28 (43.1%)	27 (41.5%)	9 (13.8%)	1 (1.5%)
	No	33 (53.2%)	22 (35.5%)	7(11.3%)	-

Table 5: Complaints variability within Gender

	Gender		p-value
	Male	Female	
Abdominal Pain	16 (59.3%)	71 (71%)	0.246
Shoulder Pain	5 (18.5%)	59 (59%)	0.001*
Headache	5 (18.5%)	45 (45%)	0.013*
Fatigue	5 (18.5%)	60 (60%)	0.001*

Mann-Whitney U test was applied to check the level of significance. *p-value of less than 0.05 was considered significant. n = 127.

Table 6: Satisfaction status of Patients

	Response		
Questions	D/SD*	A/SA*	p-value
Behaviour of professionals was good	45(35.4%)	82(64.6%)	0.001
Facilities available in hospital were adequate	90(70.9%)	37(29.1%)	0.001
Satisfied with treatment provided	31(24.4%)	96(75.6%)	0.001

* D=Disagree, SD=Strongly Disagree, A=Agree and SA=Strongly **Agree. n** = 127**.**

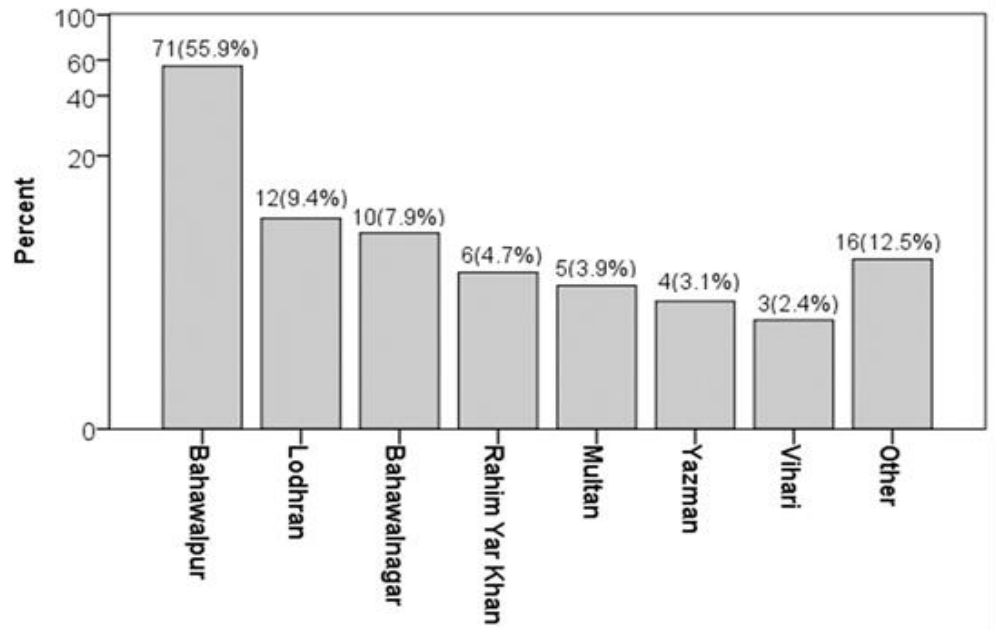

Figure 2: Residence of Patients

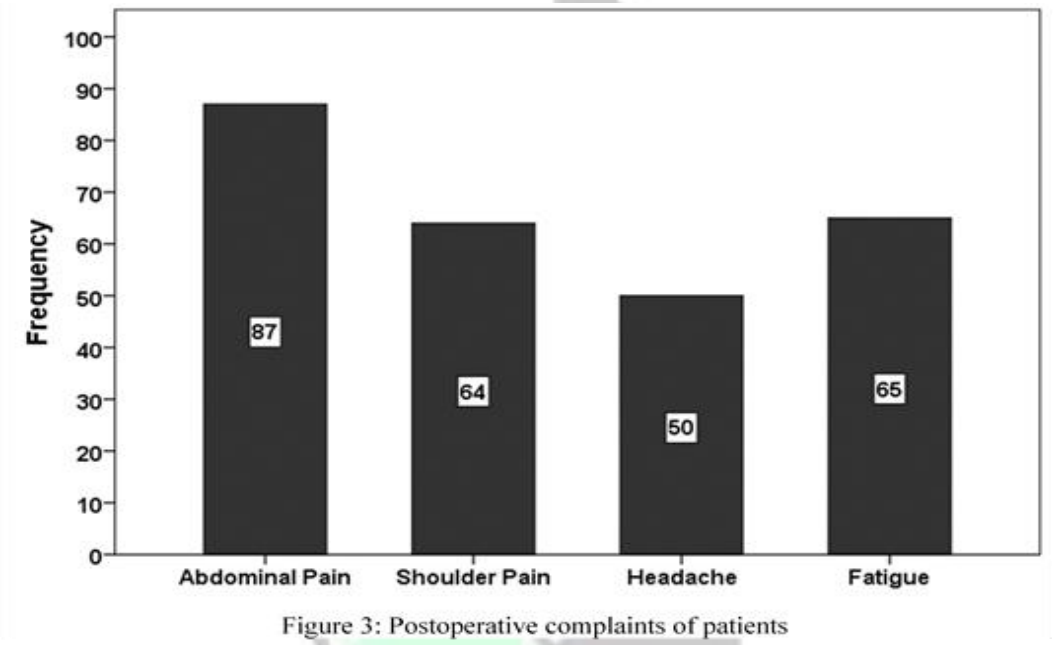

Figure 3: Postoperative complaints of patients

4. DISCUSSION

Incidence of laparoscopic cholecystectomy in Bahawal Victoria Hospital is being reported for the first time ever. In this study authors observed the frequency of cholecystectomy as 12.5% that denoted increased incidence from previously reported data of 3.07% (Khand FD, Ansari AF, Khand TU, Leghari MY, & Samo MJ, 1997), 9.03% (Channa NA, Khand FD, Bhanger MI, & Laghari MH, 2004) and 11.4% (Naseem Aslam Channa, Ali Mohammad Soomro, & Allah Bux Ghangro, 2007) that represented Hyderabad and its nearby areas of Sindh (Channa NA et al., 2004; Khand FD et al., 1997; Naseem Aslam Channa et al., 2007).

The interesting thing about cholecystectomy is its incidence increases parallel with growing age. In this study, we found that majority of the patients were less than 60 years of age. According to a WHO report 2013 (World Health Organization, 2013), average human life is approximately 66 years in Pakistan that justifies the reason behind low frequency of cholecystectomy above 60 years of age. In the authors' view, it will not be wrong to say that natural deaths decrease the incidence of cholecystectomy in Pakistan.

In this study it was found that mean age of patients was 44.49±15.33 years that was almost similar to previously reported data that indicated mean age of 43.8 ± 9.59 (Muhammad Naeem et al., 2012) and 42.80 ± 12.26 (Hafiz Muhammad Aslam et al., 2013). In this study the observed male to female ratio was 1:3.70 showing somewhat similarity of results with a recent study performed in 2013 by Aslam et al in Karachi, Pakistan that reported male to female ratio of 1:2.78 (Hafiz Muhammad Aslam et al., 2013). Justification to our results may be attributed to the gender factors, eating habits and lifestyle of female patients. These results contradict with the findings of Naeem et al because it was performed in 2012 at Karachi city reporting male to female ratio as 1:5.83 (Muhammad Naeem et al., 2012). More epidemiological research is required throughout the country for exact estimation of male-female ratio and incidence of CTS disease.

According to our results 68.5% patients reported abdominal pain. Reason behind abdominal pain was the removal of the gallbladder from the body, different strength of patients to bear pain and inappropriate pain management provided by the pain management team. In this study, 50.4% patients reported shoulder pain. Endorsing the results of studies that reported shoulder pain in 60-80% of patients (Huseyin Yilmaz, Oguzhan Arun, & Seza Apiliogullari, 2013; Samar I. Jabbour-Khoury, Aliya S. Dabbous, & Frederic J. Gerges, 2005). Another study reported an incidence of shoulder pain from 31-80% (Wills VL & Hunt DR, 2000). Shoulder pain remained as a hot topic after laparoscopic cholecystectomy, its exact etiology is still not known, however various

mechanisms are proposed that create different levels of hullabaloo between health care professionals (Wills VL & Hunt DR, 2000). The most accepted mechanism is: "the pneumoperitoneum of high pressure and residual CO2 gas inside the body result in right shoulder pain" (Jackson SA, Laurence AS, & Hill JC, 1996). This CO2 is converted to Carbonic acid in the body and irritates the phrenic nerve that is adjacent to the diaphragm resulting shoulder pain in numerous patients (Jackson SA et al., 1996). A very low percentage of patients (39.2%) reported headache, however majority of these respondents were females and 51.2% patients suffered from fatigue. Their occurrence was unexplained because their etiology after surgical procedure was not reported well. As compared to male patients more females suffered from shoulder pain, headache, and fatigue that was mainly due to the natural differences between male-female body physical texture and varying bearing ability of pain. Pain always appeared as one of the major causes of delayed hospital discharge in about 41% of patients after undergoing surgical procedures just like laparoscopic cholecystectomy (Alexander JI, 1997; Bisgaard T et al., 2001; Helena I Rosén et al., 2010; Huseyin Yilmaz et al., 2013).

Various studies were performed in western countries regarding cholelithiasis (CTS) and laparoscopic cholecystectomy. Today LC has become an ambulatory surgical procedure in many western countries due to intensive research and a lot of interventions in pre and postoperative management of patients (Athar Ali, Tabish chawla, & Abid Jamal, 2009; S Bal, L G S Reddy, R Parshad, R Guleria, & L Kashyap, 2003). This act of making LC and ambulatory procedure reduced the admissions and stay of patients in hospitals (Grace PA et al., 1991). On the other hand it reduced the cost of treatment and proven beneficial for both the public and the government as well. Advancements by making interventions in expensive procedures like LC can save the healthcare expenditures of a developing country like Pakistan.

5. Conclusion

Cholelithiasis was found highly prevalent in females as compared to males in this study. Treatment provided was Gold Standard but still patients were suffering from various postoperative pain complaints like abdominal pain, shoulder pain, headache and fatigue. Laparoscopic cholecystectomy is an expensive and technical procedure that requires expertise and planned management. Our results study enlightened that although LC is an advance procedure but still it is a cause various postoperative complaints in Pakistan. Factors causing these complaints should be identified and effective interventions shall be made to increase patient satisfaction and to reduce patients' sufferings, patients' hospital stay and cost of treatment. This action will ultimately boost up health care system of Pakistan.

Study Limitations

First study limitation was the small number of sample and short duration of study. Second limitation was intentionally not using any pain scale because patients were unable to respond well by using a pain scale due to lack of knowledge and training of patients.

Conflict of Interests

Authors declared no competitive interests for the presented work.

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