

Quality of Life Following Surgical Treatment of Post Cholecystectomy Bile Duct Injury

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ABSTRACT

Background: The Roux-en-Y hepaticojejunostomy surgery provides the mainstay of treatment in cases of bile duct injury following cholecystectomy. The aim of this study is to assess the quality of life in patients who underwent surgical repair of bile duct injury following cholecystectomy.

Methods: The prospective cross sectional study was conducted in Gastrointestinal Surgery Unit, Bir Hospital, National Academy of Medical Sciences. The cases of bile duct injury following cholecystectomy who underwent surgical repair from April 2013 to March 2018 were included. The data collection was done using SF-36 quality of life questionnaire tool. The study was conducted after ethical clearance from Institutional Review Board of National Academy of Medical Sciences.

Results: There were 26 cases of referred bile duct injury admitted in gastrointestinal surgery department from 2013 April till 2018 March out of which 19 (73%) were included in the study. More than half of the patients had limitations in carrying out vigorous activities (as running or lifting heavy objects) and 5.2% had a lot of limitations in carrying out moderate activities (as moving a table). 63.1% of the patients did not have any interference with social activities with family, friends, neighbors or social groups because of their physical health or emotional problems.

Conclusions: The surgical repair of bile duct injury following laparoscopic cholecystectomy has an impact on ability to perform work or daily activities as a result of physical health. However, it has little impact on patient's perception of general health and social activities.

Keywords: Cholecystectomy; BDI; QoL.

INTRODUCTION

In a teaching hospital in Nepal, 140 laparoscopic cholecystectomy are performed in 21 months.¹ Out of 102 laparoscopic cholecystectomy, there were 5.88% complications which included bile duct injury (BDI).²

The quality of life (QoL) is the extent to which a procedure impacts patient's physical, psychological and social aspects.³ BDI has serious implications on patient's physical and mental QoL.⁴ The decreased QoL can be attributable to prolonged, complicated and unexpected nature of these injuries.⁵ Moore et al⁶ concluded that there are long term detrimental effects of BDI on QoL. Reuver et al⁷ concluded that BDI has a detrimental effect on long-term QoL. Sarmiento et al⁸ showed that the quality of life after surgical biliary reconstruction compares favorably with that of patients undergoing

laparoscopic cholecystectomy .

There are studies on biliary functional outcome following surgical repair of BDI.⁹ The aim of this study is to assess the QoL following surgical repair of BDI.

METHODS

The prospective cross-sectional study was conducted in Gastrointestinal Surgery Department, Bir Hospital, National Academy of Medical Sciences. The cases of bile duct injury following cholecystectomy who underwent surgical repair from April 2013 to March 2018 were included. The inclusion criteria were patient with bile duct injury following cholecystectomy who underwent surgical repair, age group 15-90 years and who provide informed consent. The exclusion criteria were patients who could not be contacted and who denied informed

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consent. The data collection was done by using SF-36 QoL questionnaire tool and recorded in a proforma. The SF-36 measures 8 domains of QOL: physical functioning, role-physical, role-emotional, bodily pain, vitality, mental health, social functioning, and general health. The SF-36 tool is validated and the reliability of the SF-36 have exceeded 0.80 with the estimates of reliability in the physical and mental sections above 0.90.¹⁰⁻¹² Using the SF-36 tool, general health perceptions, bodily pain, physical/emotional/social role functioning and bodily pain were assessed. The data was entered in MS Excel and statistical analysis was done by SPSS version 16. The study was conducted after taking ethical clearance from Institutional Review Board of National Academy of Medical Sciences.

RESULTS

There were 26 cases of bile duct injury admitted in Gastrointestinal surgery unit from 2013 April till 2018 March. All of the cases were referred to Gastrointestinal surgery unit. 13 cases were referred from other hospital and 6 cases were referred from other surgical units. 19 patients were included in the study and the excluded cases were those who refused surgery and referred, improved with ERCP and could not be contacted. Out of 19 patients, 15 (78%) were female and 4 (22%) were male. The mean age group of the patients was 40.9±12.0 years with maximum age 65 years and minimum age 22 years. The BDI occurred after laparoscopic cholecystectomy in 7 (36.8%), open cholecystectomy in 5 (26.3%), laparoscopic converted to open cholecystectomy in 6 (31.5%) and attempted repair after laparoscopic cholecystectomy in 1 (5.2%) (Table 1).

Table 1. Type of surgery for repair of post cholecystectomy bile duct injury.

Type of surgery	Number	%
Roux-en-Y Hepaticojejunostomy	14	73.6
Roux-en-Y Hepaticojejunostomy with T-tube	1	5.2
Roux-en-Y Hepaticojejunostomy with access loop	1	5.2
Rt hepaticojejunostomy	1	5.2
Roux-en-Y Hepaticojejunostomy with closure of duodenal fistula	2	10.4

9 (47.3%) cases considered their “general health” as “good” where as 1(5.2%) considered it as “poor”. (Figure 1) More than half of the patients had limitations in carrying out vigorous activities (as running, lifting heavy objects or participating in strenuous sports) and about a third of the patients had a lot of limitations in carrying

out those activities. Although, half of the patients had limitations in carrying out moderate activities (as moving a table), only 1 (5.2%) had a lot of limitations in carrying our such activities.

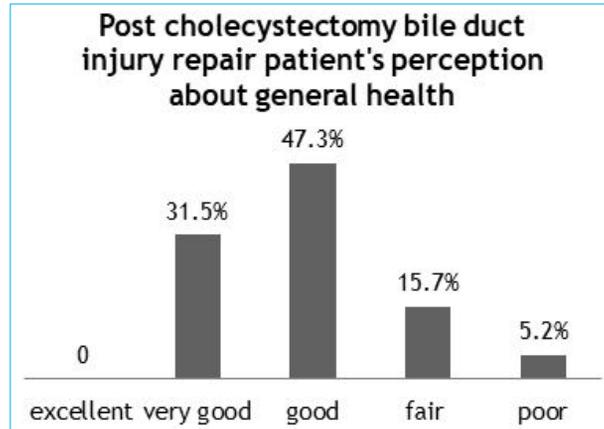


Figure 1. Patient's perception about general health following post cholecystectomy bile duct injury repair.

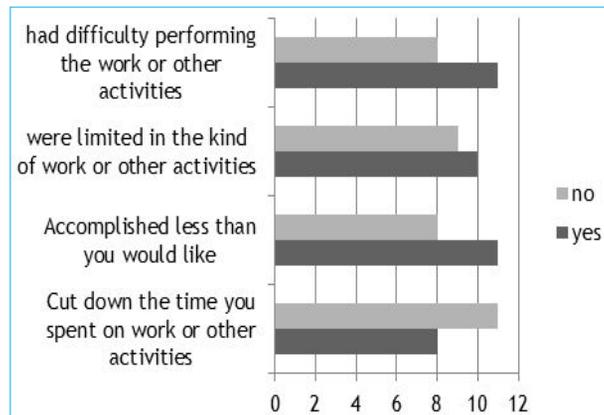


Figure 2. Problems with work or regular daily activities as a result of physical health.

More than half of the patients had problems with carrying out work or regular daily activities as a result of physical health following surgical repair of bile duct injury. (Figure 2). On the contrary, more than half of the patients did not have problems with carrying out work or regular daily activities as a result of their emotional problems such as feeling depressed or anxious. Moreover, 12 (63.1%) patients did not have any interference with social activities with family, friends, neighbors or social groups because of their physical health or emotional problems (Figure 3).

7 (36.8%) patients had experienced mild pain and 5 (25.3%) patients had moderate pain during the past 4 weeks (prior to interview) where as none of the patients had severe or very severe pain. 6 (31.2%) patients found

the statement “I seem to get sick a little easier than other people” mostly true.

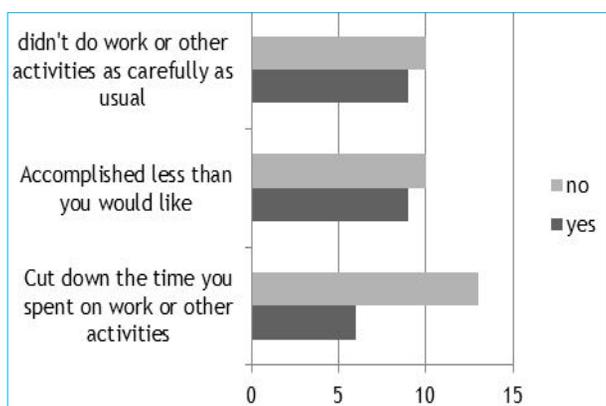


Figure 3. Problems with work or regular daily activities as a result of emotional problems.

DISCUSSION

The health related quality of life study on surgical repair in post cholecystectomy bile duct injury has shown disparity in results. Few study such as Sarmiento et al⁸ and Melton et al⁵ show that there is favorable comparison between patients with bile duct injury and control whereas Boerma et al⁴ and Moore et al⁶ found the bile duct injury group had lower Quality of Life scores.

In our study, more than 50% of the patients considered their “general health” as “good”. Sarmiento et al⁸ showed that the quality of life after surgical reconstruction of laparoscopic cholecystectomy-induced bile duct injuries was as good as that of a control population after uneventful laparoscopic cholecystectomy when assessed a minimum of 5 years after operation. Hogan A M et al using Quality of Life SF-36 questionnaire had a similar finding that quality of life compares favourably to that after uncomplicated laparoscopic cholecystectomy.¹⁰ Rosado ID et al have demonstrated the favorable impact on QOL after surgical repair of complex bile duct injuries and in short and long-term follow-up, QOL achieves favorable scores but never reaches normal population expectations.¹¹ The study has also concluded that better surgical outcomes are no guarantee of QOL improvement. In our study, 42.2% had surgical complications which did not require surgical intervention and there were no mortality.

Boerma et al⁴ showed that in 106 patient of laparoscopic bile duct injury out of which 32 were treated surgically when compared with patients who underwent uneventful laparoscopic cholecystectomy and healthy, age and sex-matched controls, study patients were found to have

significantly poorer quality of life in all 8 subscales. Reuver et al⁷ also concluded that bile duct injury has a long term detrimental effect on long term quality of life and quality of life in patients with bile duct injury is poor and does not improve during follow up. This is in contrast to our finding where 5.2% of the patients, who underwent surgical repair of post cholecystectomy bile duct injury, had considered it “poor”. 31.2% of the patients feel that they seem to get sick a little easier than other people. In our study 42.1% and 47.1% of the patients did not have any limitations in vigorous and moderate physical activities respectively. 63.1% of the patients did not have any interference with normal social activities with family, friends, neighbors, or groups due to physical health or social problems. The difference in the finding of Boerma et al and Reuver PR et al as compared to our study can be due to the disparity in the perception of the Dutch patients and Nepalese patients toward their general health. Besides, the study by Reuver et al has used gastrointestinal quality of life index. The quality of life is extremely subjective variable, the measure of which can be influenced by gender, age, social background, ethnicity or nationality. A similar study by Moore et al⁶ in 2004 has concluded that after bile duct injury and repair, there are long term detrimental effects of bile duct injury on health related quality of life. The study further found that despite the long-term physical and psychosocial impairment, the majority of the patients with BDI were able to return to work. However, they returned to work almost 3 months later on average than patients who underwent uncomplicated laparoscopic cholecystectomy. In our study, more than half of the patients had difficulty in performing work or daily activities and were limited in the kind of work and felt that they accomplished less than they would like as a result of their physical health. Ezaj et al¹² from the United States in 2014, which has used SF-36 and disease specific gastrointestinal quality of life scale has concluded that detrimental mental health effects in patients with bile duct injury are common. Melton⁵ showed that although there was a significant difference in the QOL as evaluated from a psychological dimension, bile duct injury patients reported QOL scores in the physical and social domains comparable to those of control patients and the decreased QOL assessment in the psychological dimension may be attributable to the prolonged, complicated, and unexpected nature of these injuries. A meta-analysis by Landman et al has concluded that in comparison to laparoscopic cholecystectomy there is detrimental effect of bile duct injury on mental health related quality of life.¹³ This is in contrary to the findings in our study where the patients seem to be affected in their daily work and activities as a result of

their physical health but not affected as a result of their mental health.

The study design, modality used for treatment of BDI and quality of life instrument makes direct comparison between the studies difficult. The long term follow up study needs to be designed to assess the quality of life in the later years. However, Moore et al⁶ found that the relationship between scores in the BDI and LC groups on both the SF-36 Physical score and Mental Score did not change with duration of follow-up (P=.53).

CONCLUSIONS

The surgical repair of bile duct injury following laparoscopic cholecystectomy has little impact on patient's perception of general health and social activities where as it has a tremendous impact on ability to perform work or daily activities as a result of physical health.

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