



# How much is the long-term quality of life impaired in cholecystectomy-related biliary tract injury?

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## ABSTRACT

**Objective:** Iatrogenic bile duct injury (IBDI) is a serious complication of cholecystectomy that may crucially affect long-term quality of life and have major morbidities. Furthermore, even after reconstructive surgical treatment, such injuries still reduce the long-term quality of life. Therefore, there remains a need to investigate long-term quality of life of the patients since it is considered that there is a long-term decrease in both physical and mental quality of life. Accordingly, this study aimed to investigate the clinical evaluations and long-term quality of life of the patients who had undergone reconstructive surgery for iatrogenic bile duct injury.

**Material and Methods:** This clinical study included 49 patients (38 females/11 males) with cholecystectomy-associated bile duct injury and who underwent reconstruction surgery. Several parameters, including the type of bile duct injury, reconstructive surgical procedures, length of hospital stay, and complications were evaluated. Moreover, the effects of reconstructive surgical timing (perioperative, early postoperative, late postoperative) on quality of life were assessed. Long term quality of life (LTQL) levels were evaluated using the SF-36 questionnaire in patients whose follow-ups ranged from two to nine years. The SF-36 questionnaire scores were compared to the average SF-36 norm values of the healthy Turkish population.

**Results:** Our results showed that 73.5% of biliary tract injuries occurred after a laparoscopic surgery while 26.5% after open cholecystectomy. Of the injuries, 32.7% developed in patients with acute cholecystitis. Thirty of the patients were treated with hepaticojejunostomy. When SF-36 questionnaire scores of the study were compared to those of the healthy Turkish population, energy-vitality was found to be lower significantly in male patients ( $p=0.041$ ). However, there was no significant deterioration in female patients. Although general health perception was better in hepaticojejunostomy according to the type of reconstructive surgery performed, no significant difference was observed in the quality of life. Mental health, energy-vitality ( $p=0.019$ ), and general health perception ( $p=0.026$ ) were found to be lower in women who had E<sup>1</sup>-E<sup>2</sup> injuries. Only seven of the injuries were detected perioperatively. Physical function ( $p=0.033$ ) and general health perception ( $p=0.035$ ) were found to be lower in the early postoperative treatment group in male patients in terms of the time of reconstructive surgery.

**Conclusion:** IBDIs cause serious morbidity. Furthermore, even after reconstructive surgical treatment, such injuries still reduce LTQL. Our results suggest that LTQL is lower, especially in male patients undergoing postoperative early biliary repair for Strasberg E<sup>3</sup>-E<sup>4</sup> type injuries.

**Keywords:** Bile duct injury, cholecystectomy, complication, hepaticojejunostomy, quality of life, SF-36

## INTRODUCTION

Cholecystectomy, which is one of the most common surgical operations in the field of general surgery, is frequently performed laparoscopically. The risk of iatrogenic bile duct injury (IBDI) is around 0.4% worldwide (1). Along with other complications and risks, IBDI also requires some invasive procedures. For example, even minor injuries may result in serious morbidity and mortality due to bile leakage and sepsis (2). Although reconstructive surgical procedures are mostly successful, life-long problems may still occur, including serious complications such as biliary stricture, portal hypertension, cirrhosis, and liver failure. Therefore, there remains a need to investigate long-term quality of life (LTQL) of the patients since it is considered that there is a long-term decrease in both physical and mental quality of life. Accordingly, this study aimed to investigate the clinical evaluations and LTQL of patients who had undergone reconstructive surgery for IBDI. Quality of life shows differences between different groups with various education or socioeconomic status and different geographical regions. Although studies on quality of life after IBDI have been published previously, the presented study is the first one studied in the Turkish population.

## MATERIAL and METHODS

The study was conducted in accordance with the Declaration of Helsinki, and the study protocol was approved by Gaziantep University Clinical Research Ethics Committee (Ethical approved number: 2018/340 on 13.03.2019).

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Starting from October 2009, patients who had undergone reconstructive surgery with a diagnosis of IBDI were scanned from the electronic archive of the hospital. Among potential participants, patients who died or could not be contacted, and those who were treated within the last two years were excluded from the study. Following an approval of participation from the patients, clinical and demographic characteristics were recorded. The following information were evaluated: primary disease, surgical method performed, type of bile duct injury according to Strasberg classification, time between the primary surgery and reconstructive surgery, reconstructive surgical procedures performed, length of hospital stay, and complications.

SF-36 questionnaire was used to evaluate LTQL (3). It was ensured that all patients answered the questions on the questionnaire with the help of a healthcare staff. At the same time, blood samples were taken from the patients to evaluate their current biochemical parameters. In this way, LTQL and current physiological parameters of the patients with IBDI after cholecystectomy were examined.

Although the same SF-36 questionnaire was applied to both sexes, the results were evaluated separately for male and female patients because Turkish norm values of the SF-36 questionnaire (4) showed differences for both sexes. Thereby, an opportunity was ensured for analyzing the data more specifically. Physical function, physical role difficulties, emotional role difficulties, energy-vitality, mental health, social functionality, pain, and general health perception were evaluated in this questionnaire. Each question in the SF-36 questionnaire was scored according to the replacement instruction in the original literature (3). SF-36 scores were then calculated by taking the arithmetic mean of the scores collected within each main parameter. The scores of all patients under eight main headings in the SF-36 questionnaire form were compared with the current SF-36 norm values of the Turkish population. Instead of uncomplicated cholecystectomy patients, Turkish norm values of SF-36 questionnaire have been used as a control group. The reason was that both Turkish norm values had been obtained considering many people, and also the norm value of uncomplicated cholecystectomy patients were similar with these results.

Patients aged 18-78 whose ASA classifications were between ASA 1 and ASA 3 and who did not have serious cardiopulmonary morbidity in their medical history were not separated into subgroups within this topic.

Since all patients did not experience the same anatomical level and the same severity of bile duct injuries, SF-36 scores of the different reconstructive surgical procedures performed to the patients were also compared. In terms of quality of life of the patients, end-to-side standard roux-en-Y hepaticojejunostomy (HJ) and other reconstructive surgical procedures (choledoco-duodenostomy, common bile duct primary repair, common

bile duct t-tube drainage, cystic duct ligation, Luschka ligation) were compared.

The present study was carried out in an experienced hepatopancreatobiliary center. All reconstructive surgical procedures were performed by the same team consisting of three surgeons.

Hepaticojejunostomies were classified as Strasberg E<sup>1</sup>-E<sup>2</sup> and E<sup>3</sup>-E<sup>4</sup>, and then evaluated separately (5).

The timing of the reconstructive surgery was further evaluated with the questionnaire scores.

Moreover, the patients were divided into three groups according to the time between biliary injuries and reconstructive surgery; perioperative, early postoperative and late postoperative periods. Perioperative period was defined as the interval in which reconstructive surgery was performed intraoperatively or within the first three days according to the injury time. Early postoperative period was defined as the period between the postoperative 4<sup>th</sup> day and the postoperative 30<sup>th</sup> day, and late postoperative period was defined as the period after postoperative 31<sup>st</sup> day.

All statistical analyzes were performed using SPSS 22.0 Windows version. Shapiro-Wilk test was used to test normal distribution of data. Based on normal distribution validation, either Student-t or Mann-Whitney U tests were used to compare two groups and whether data were normally distributed or not, respectively. The Kruskal-Wallis test and the All-Pairwise test were used to compare more than two non-normally distributed variables.  $p < 0.05$  was considered as statistically significant.

## RESULTS

A total of 68 patients who had been surgically treated for IBDI after cholecystectomy between October 2009 and October 2017 were initially included in this study. As of March 2019, the patients who died and those who could not be reached were excluded from the study. Therefore, the study included 49 patients who were followed up regularly for two years after reconstructive surgical treatment. Previously, the patients had been operated with the diagnosis of acute cholecystitis (32.7%) and were operated by laparoscopic method in 73.5% of all cholecystectomies. While Strasberg type B and E<sup>5</sup> injuries were not seen at all, the most common injury types were E<sup>2</sup> and E<sup>3</sup> injuries.

Seven of these injuries were detected intraoperatively. While four of these patients had HJ, one patient had a t-tube drainage in the common bile duct, one patient had choledoco-duodenostomy, and last one had choledoco-coledocostomy. Reconstructive surgical procedures were required for 31 patients in the early postoperative period and 11 patients in the late postoperative period. The clinical data of these patients are shown in Table 1.

**Table 1.** Clinical and demographic characteristics of all patients

		Patients (n= 49)	Percent (%)
Age		18-78	44.10 ± 13.88
Sex (F/M)		38/11	
Primary disease	Acute cholecystitis	16	32.7
	Chronic cholecystitis	33	67.3
Primary surgery	Open cholecystectomy	13	26.5
	Laparoscopic cholecystectomy	36	73.5
RS times after IBDIs	Peroperative period	7	14.2
	Early postoperative period	31	63.2
	Late postoperative period	11	22.4
Injury types (Strasberg classification)	A	7	14.3
	C	1	2
	D	7	14.3
	E <sup>1</sup>	7	14.3
	E <sup>2</sup>	12	24.3
	E <sup>3</sup>	12	24.3
RS types	E <sup>4</sup>	3	6.1
	Roux N-Y hepaticojejunostomy	30	61.2
Clinical findings	Other RS	19	38.8
	Abdominal pain	21	42.8
	Jaundice	8	16.3
	Bile drainage	8	16.3
Complications after RS	Sepsis	4	8.16
	Wound infection	10	20.5
	Cholangitis	9	18.4
	Incisional hernia	7	14.3
Length of hospital stay (day)	Postoperative stricture	5	10.2
	4-58 (avg. 13.84)		

RS: Reconstructive surgery, IBDI: Iatrogenic bile duct injury.

We compared SF-36 scores of the female patients with the average scores of the healthy Turkish female population, and no statistically significant differences were observed. A significant decrease was seen in the SF-36 scores of male patients related to energy and vitality (Table 2). Although physical role difficulties were also affected in male patients who underwent reconstructive surgery after IBDI, they did not reach to the statistically significant level when compared to the normal population.

In terms of physical function, physical role difficulty, emotional role difficulties, energy-vitality, mental health, social functionality, and general health perception, we found that patients with HJ and other surgical procedures had lower scores than average. When HJ and other reconstructive surgeries were compared, we observed that only general health perception in

patients with HJ had a higher score than the patients that carried out other reconstructive surgeries (Table 3).

We further found that the recent biochemical values of all patients improved when compared to the reconstructive surgery time and most importantly remained within reference ranges.

All biliary strictures were seen in Strasberg E<sup>3</sup> and E<sup>4</sup> type injured. For this reason, we compared the E<sup>1</sup>-E<sup>2</sup> with E<sup>3</sup>-E<sup>4</sup> type injuries. Within this classification, a statistically significant lowness was seen at energy-vitality, mental health and general health perception. Another finding of the present study was that Strasberg E<sup>1</sup> and E<sup>2</sup> injuries in female patients always had higher scores in each SF parameters compared to those of E<sup>3</sup> and E<sup>4</sup> type injuries. Moreover, mental health, energy-vitality,

**Table 2.** Comparison of the SF-36 scores of the patients to LTQL norms of the healthy Turkish population

	Female/Male	Patients SF scores	Healthy Turkish population average SF scores	p
Physical function	F	88.03 ± 10.43	80.6 ± 21.7	0.003*
	M	87.27 ± 09.58	80.6 ± 21.7	0.980
Physical role difficulties	F	75.00 ± 43.11	82.9 ± 28.6	0.588
	M	63.64 ± 50.45	82.9 ± 28.6	0.646
Emotional role difficulties	F	76.31 ± 40.94	89.0 ± 22.5	0.588
	M	63.64 ± 50.45	89.0 ± 22.5	0.646
Energy-Vitality	F	58.55 ± 19.72	63.4 ± 13.7	0.138
	M	51.82 ± 19.66	63.4 ± 13.7	<b>0.041*</b>
Mental health	F	67.26 ± 20.79	70.1 ± 11.4	0.679
	M	63.27 ± 21.00	70.1 ± 11.4	0.250
Social functionality	F	83.22 ± 22.93	90.1 ± 12.9	0.231
	M	80.68 ± 26.44	90.1 ± 12.9	0.587
Pain	F	80.86 ± 17.60	81.0 ± 20.2	0.821
	M	75.68 ± 19.78	81.0 ± 20.2	0.145
General health perception	F	61.32 ± 24.98	69.1 ± 16.9	0.062
	M	64.09 ± 22.56	69.1 ± 16.9	0.192

\*p< 0.05.

**Table 3.** Comparison of LTQL of the patients with hepaticojejunostomy to other reconstructive surgery procedures

	HJ (n= 30)	Other reconstructive procedures (n= 19)	p
Physical function	87.83 ± 8.78	87.89 ± 12.28	0.793
Physical role difficulties	68.33 ± 46.39	78.95 ± 41.89	0.389
Emotional role difficulties	70.00 ± 44.07	78.95 ± 41.89	0.451
Energy-vitality	58.17 ± 16.63	55.26 ± 24.18	0.650
Mental health	68.00 ± 16.84	63.79 ± 25.94	0.535
Social functionality	84.58 ± 17.58	79.61 ± 30.96	0.957
Pain	80.67 ± 13.91	78.16 ± 23.48	0.746
General health perception	65.67 ± 21.20	56.05 ± 28.02	0.179

HJ: hepaticojejunostomy, LTQL: Long term quality of life.  
p< 0.05 significant analysis.

and general health perception had significantly lower scores in injuries involving the bile duct hilus. Male patients with E<sup>3</sup> and E<sup>4</sup> types of injuries had higher scores in physical function, energy-vitality, mental health, and general health perception than those who had E<sup>1</sup> and E<sup>2</sup> injuries. Furthermore, patients with E<sup>3</sup> and E<sup>4</sup> types of injuries had lower scores in terms of physical role difficulties, emotional role difficulties, and social functionality; however, these lower scores did not reach to a statistically significant level (Table 4).

There were no statistically significant differences in the quality of life in female patients according to the reconstructive sur-

gery period. On the other hand, physical function scores in male patients treated in the early postoperative period were found to be significantly lower than in the patients diagnosed perioperatively (p= 0.033). General health perception also had a significantly lower score in those who had early postoperative surgery compared to the others (p= 0.035) (Table 5). However, it is important to note that the number of patients for comparison was quite low in the current study.

As morbidity, nine patients were re-admitted to the hospital because of recurrent episodes of cholangitis and increased liver function tests after reconstructive surgery. Stricture occurred in

**Table 4.** Comparison of Strasberg E type IBDIs in terms of LTQL

	Sex	Strasberg E <sup>1</sup> -E <sup>2</sup> Injury (F= 15, M= 4)	Strasberg E <sup>3</sup> -E <sup>4</sup> Injury (F= 10, M= 6)	p
Physical function	F	90.67 ± 10.67	82.50 ± 07.17	0.091
	M	87.50 ± 08.66	90.00 ± 8.37	0.914
Physical role difficulties	F	80.00 ± 41.40	45.00 ± 49.72	0.115
	M	75.00 ± 50.00	66.67 ± 51.64	1.000
Emotional role difficulties	F	80.00 ± 41.40	50.00 ± 45.13	0.16
	M	75.00 ± 50.00	66.67 ± 51.64	1.000
Energy-vitality	<b>F</b>	<b>66.00 ± 18.63</b>	<b>47.00 ± 12.06</b>	<b>0.019*</b>
	M	46.25 ± 13.77	60.83 ± 18.28	0.257
Mental health	<b>F</b>	<b>73.60 ± 18.56</b>	<b>55.60 ± 14.78</b>	<b>0.019*</b>
	M	60.00 ± 16.97	72.67 ± 14.84	0.610
Social functionality	F	84.17 ± 20.30	75.00 ± 19.54	0.196
	M	87.50 ± 25.00	85.41 ± 18.40	0.762
Pain	F	81.83 ± 16.13	72.25 ± 12.88	0.091
	M	70.63 ± 24.36	84.17 ± 11.47	0.476
General health perception	<b>F</b>	<b>70.67 ± 24.99</b>	<b>50.00 ± 17.16</b>	<b>0.026*</b>
	M	65.00 ± 14.72	71.67 ± 18.35	0.762

five of these patients in the long term. Among these patients, one is still being followed up with a percutaneous catheter, and a slight increase in current biochemical values persists. One patient, in whom the left hepatic lobe was atrophic due to stricture, was clinically compensated, and biochemical blood values were normal. Re-hepaticojejunostomy was performed in another patient due to the development of stricture after HJ. The others (patients with choledocoduodenostomy and T-tube drainage) were treated with HJ. In these patients, we observed that the results of the questionnaire in each parameter were below the norm values of the other IBDIs.

## DISCUSSION

In the past two decades, there has been a steady-state increase in bile duct injuries which has also been in direct proportion to the increase in laparoscopic cholecystectomies (6). This complication is critical because it occurs twice as often as the open technique, and these injuries may be located more proximally and accompanied by vascular injuries (7,8). Since patients with bile duct injury always have a risk for long-term complications, these patients must need a lifelong follow-up for biliary tract strictures and other complications even if adequate treatment has been performed.

There are only a few studies investigating an association between the quality of life and IBDI. The main purpose of evaluating this association in previous studies is to see whether bilioenteric diversion surgeries are sufficient to keep the quality of life at normal standards or not. In previously published studies, the

comparisons have been made with uncomplicated cholecystectomy patients, and it has been reported that general health, physical functions, and social functions are affected (9,10). In an earlier study in which 54 IBDI patients undergoing reconstructive surgery have been examined, the authors have reported that only emotional scores were affected (11). They have further reported that physical and social quality of life in these patients were similar to the patients with normal cholecystectomy, whereas there was greater deterioration in the psychological quality of life in these patients (11). It seems that the differences in the quality of life in that earlier study from year to year are due to external factors. However, in the current study, although evaluation with the SF-36 questionnaire is a subjective and self-assessed measurement, SF-36 questionnaire was chosen when considering that it was a more comprehensive method to assess LTQL. On the other hand, LTQL was compared with healthy people instead of patients who underwent uncomplicated cholecystectomy in the present study. Thus, possible minor thermal trauma to the common bile duct in apparently uncomplicated cholecystectomies was ruled out.

In this study, the effects of HJ and other reconstructive operations on the scores of physical function, energy-vitality, mental health, and social functionality were similar. Although physical and emotional quality scores were lower in the HJ group, there was no statistical significance, which may be due to the fact that these patients were informed that they had undergone a more complicated surgical procedure. However, in terms of general health perception, those who had HJ had higher sco-

**Table 5.** Comparison of LTQL according to the timing of reconstructive surgery in male patients

		n= 11	SF scores	p
Physical function	A	2	97.5000 ± 3.53553	<b>0.043*</b>
	<b>B</b>	<b>7</b>	<b>82.1429 ± 7.55929</b>	
	C	2	95.0000 ± 7.07107	
Physical role difficulties	A	2	100.0000 ± .00000	0.195
	B	7	42.8571 ± 53.45225	
	C	2	100.0000 ± .00000	
Emotional role difficulties	A	2	100.0000 ± .00000	0.195
	B	7	42.8571 ± 53.45225	
	C	2	100.0000 ± .00000	
Energy-vitality	A	2	70.0000 ± 21.21320	0.252
	B	7	43.5714 ± 15.46886	
	C	2	62.5000 ± 24.74874	
Mental health	A	2	80.0000 ± 11.31371	0.087
	B	7	53.7143 ± 19.30211	
	C	2	80.0000 ± 16.97056	
Social functionality	A	2	93.7500 ± 8.83883	0.344
	B	7	71.4286 ± 29.50484	
	C	2	100.0000 ± 00000	
Pain	A	2	85.0000 ± 7.07107	0.298
	B	7	68.9286 ± 21.45039	
	C	2	90.0000 ± 14.14214	
General health perception	A	2	85.0000 ± 7.07107	<b>0.035*</b>
	<b>B</b>	<b>7</b>	<b>52.8571 ± 19.54847</b>	
	C	2	82.5000 ± 17.67767	

A: The patients undergoing reconstructive procedures in the perioperative period.  
 B: The patients undergoing reconstructive procedures in the early postoperative period.  
 C: The patients undergoing reconstructive procedures in the late postoperative period.  
 n: Number of patients.

res. A possible interpretation of this finding is that since the tissues with impaired vascularity and thermal damage were excised during injury and HJ offered tension-free anastomosis, HJ might result in higher scores. On the other hand, the quality of life of five patients who developed strictures after hepatico-jejunostomy decreased. However, this did not cause a statistically significant difference.

An appropriate timing for reconstructive surgical intervention is crucial after bile duct injuries. While the chance of successful surgery is high, especially in patients who can be intervened in the first 72 hours, sepsis is a serious problem for reconstruction in cases with longer diagnosis and patient transferring time (12-14). Previously, it has been reported that a delayed admission in IBDI is associated with the frequency of postoperative complications, requires more invasive treatments, and also, the recovery time is prolonged (15). In our study, common bile duct

(CBD) transection was instantly detected intraoperatively in one patient, and end-to-end repair of the CBD was performed. HJ was also performed in the same session in three patients in whom IBDI was detected intraoperatively. For these patients, survey results were similar to the norm values in terms of this physical function, energy-vitality, general health perception, and mental health. However, they had low scores in other subtitles. Performing reconstructive repair in the same session gives a much better result for the patient, and such approach is strongly recommended (16-19). On the other hand, surgical repair is not preferred in the postoperative period of 4-30 days due to long term complications. Likewise, we also observed that physical function and general health perception decreased in those who were operated during this period. However, it is again important to highlight that the number of patients compared in this study was quite low.

Previous studies have noted that there is a significant deterioration in quality of life in IBDI patients even years after cholecystectomy (20). This health problem does not only impact an individual life but also is closely related to the increasing demand for healthcare services, its cost and litigation (21,22). Therefore, an informed consent between the doctor and the patient becomes a significant legal document in this regard. For example, a previous study has shown that almost half of the surgeons in England rarely or never mention the possibility of bile duct injury in the perioperative period (23). Therefore, the frank and clear attitude of the surgeons towards the patients and the communication with the patient in case of complications would be very beneficial in terms of quality of life.

Many studies have shown a long-term decrease in both physical and mental quality of life, even after a successful surgery following a biliary tract injury (24-27). Boerma (28) has used the SF-36 questionnaire to investigate the impaired quality of life five years following a bile duct injury during laparoscopic cholecystectomy. They have reported that despite excellent endoscopic and surgical results in 106 patients, there was a significant deterioration in physical and mental functions compared to the control groups consisting of patients with uncomplicated cholecystectomy surgery and patients with Dutch population norms. They have further suggested that a poor mental function according to the timing of reconstructive surgery treatment is an independent prognostic factor. In another previous study, de Reuver et al. (10) have reported worsening outcomes in seven of the eight sub-parameters in SF-36 questionnaire for IBDI patients compared to the those of normal population. Furthermore, Landman et al. (20) have reported that mental functions are affected in LTQL based on a comprehensive literature search. They have compared various patient groups (by sex, injury type, treatment timing) comprehensively (20). Taking all into consideration, our findings on the negative effects of IBDI on quality of life reveal that LTQL is partially affected.

This study has some limitations. First, all IBDI patients were included in this study, regardless of their treatment modality. LTQL was compared across several subgroups (by sex, type of surgery, and level of injury, timing of reconstructive surgery). In this way, we tried to prevent the effects of variability and the potential effects on the results of the survey-associated with sex while evaluating LTQL. Second, the patients were selected from a wide period of time, and the biochemistry values were examined after nine years in some patients and three years after reconstructive surgery in others. Therefore, such factors may affect the outcomes of this study. Third, the number of patients in the groups were low and we did not separate all of the patients with and without complications, which are also other limitations of this study. Last, significant accompanying

vascular injuries could not be detected in the hospital records. Thus, future well-standardized studies involving multi-center data with fixing the time between the treatment and the survey time, classifying the patients with postoperative complications are still needed to support the outcomes of this current study.

Our cumulative results suggest that the LTQL of male patients, who underwent a bile duct repair in the postoperative period of 4-30 days, and the LTQL of female patients with Strasberg E<sup>3</sup> and E<sup>4</sup> injuries are mostly affected. Along with previous studies, this study reveals that even if a successful surgery is performed after IBDI, there is still a decrease in both physical and mental LTQL. Therefore, we believe that training physicians in accordance with surgical techniques and skills would reduce the possibility of bile duct injury and many patients would survive this devastating complication.

#### Main Points:

- Patients with bile duct injury always have a risk for long-term complications.
- An appropriate timing for reconstructive surgical intervention is crucial after bile duct injuries.
- The main purpose of this study was whether reconstructive surgical intervention was sufficient to keep the quality of life at normal standards.

**Ethics Committee Approval:** This study was approved by Gaziantep University Clinical Research Ethics Committee (Reference no: 2018/340, Date: 13.03.2019).

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**ORJİNAL ÇALIŞMA-ÖZET**

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**Kolesistektomiye bağlı safra yolu yaralanmalarında uzun dönem yaşam kalitesi ne kadar etkilenir?**

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**ÖZET**

**Giriş ve Amaç:** İyatrojenik safra kanalı yaralanması, kolesistektominin önemli ölçüde uzun süreli yaşam kalitesini etkileyebilecek ciddi bir komplikasyondur ve majör morbiditelere sahip olabilir. Ayrıca, rekonstrüktif cerrahi tedaviden sonra bile, bu tür yaralanmalar uzun vadeli yaşam kalitesini düşürmektedir. Bu nedenle hastaların hem fiziksel hem de zihinsel yaşam kalitesinde uzun süreli bir düşüş olduğu düşünüldüğünden hastaların uzun süreli yaşam kalitesini araştırmaya hala ihtiyaç vardır. Buna göre, burada iyatrojenik safra kanalı yaralanması nedeniyle rekonstrüktif cerrahi uygulanan hastaların klinik değerlendirmelerini ve uzun dönem yaşam kalitesini araştırdık.

**Gereç ve Yöntem:** Bu klinik çalışmaya kolesistektomi ile ilişkili safra kanalı hasarı olan ve rekonstrüksiyon ameliyatı geçiren 49 hasta (38 kadın/11 erkek) dahil edildi. Safra kanalı yaralanması tipi, rekonstrüktif cerrahi girişimler, hastanede kalış süresi ve komplikasyonlar dahil olmak üzere çeşitli parametreler değerlendirildi. Ayrıca rekonstrüktif cerrahi zamanlamasının (preoperatif, erken postoperatif, geç postoperatif) yaşam kalitesi üzerine etkileri değerlendirildi. Takipleri iki ila dokuz yıl arasında değişen hastalarda uzun süreli yaşam kalitesi düzeyleri SF-36 anketi kullanılarak değerlendirildi. SF-36 anket puanları sağlıklı Türk nüfusunun ortalama SF-36 norm değerleri ile karşılaştırıldı.

**Bulgular:** Sonuçlarımız safra yolu yaralanmalarının %73,5'inin laparoskopik cerrahi sonrası, %26,5'inin açık kolesistektomi sonrası oluştuğunu göstermiştir. Yaralanmaların %32,7'si akut kolesistitli hastalarda gelişti. Hastaların otuzu hepatikojejunostomi ile tedavi edildi. Çalışmanın SF-36 anket skorları sağlıklı Türk popülasyonunkilerle karşılaştırıldığında, erkek hastalarda enerji-canlılığın anlamlı derecede düşük olduğu bulunmuştur ( $p=0,041$ ). Bununla birlikte, kadın hastalarda anlamlı bir bozulma yoktu. Yapılan rekonstrüktif cerrahi tipine göre hepatikojejunostomide genel sağlık algısı daha iyi olmasına rağmen yaşam kalitesinde anlamlı fark gözlenmedi. E<sup>1</sup>-E<sup>2</sup> yaralanması olan kadınlarda ruh sağlığı, enerji-canlılık ( $p=0,019$ ) ve genel sağlık algısı ( $p=0,026$ ) daha düşük bulundu. Yaralanmaların sadece yedisi ameliyat sırasında tespit edildi. Erkek hastalarda postoperatif erken tedavi grubunda rekonstrüktif cerrahi süresi açısından fiziksel fonksiyon ( $p=0,033$ ) ve genel sağlık algısı ( $p=0,035$ ) daha düşük bulundu.

**Sonuç:** İyatrojenik safra yolu yaralanmaları ciddi morbiditeye neden olur. Ayrıca rekonstrüktif cerrahi tedaviden sonra bile, bu tür yaralanmalar uzun süreli yaşam kalitesini azaltır. Sonuçlarımız, özellikle Strasberg E<sup>3</sup>-E<sup>4</sup> tipi yaralanmalarda postoperatif erken biliyer onarım uygulanan erkek hastalarda uzun süreli yaşam kalitesinin daha düşük olduğunu göstermektedir.

**Anahtar Kelimeler:** Safra yolu yaralanması, kolesistektomi, komplikasyon, hepatikojejunostomi, yaşam kalitesi, SF-36

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