

Recurrence of Obstructive Symptoms and Quality of Life after Insertion of Non-Cover Metal Stent Inside the Biliary Duct in Patients with Pancreatic Cancer

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ABSTRACT

Background: Quality of disease is improved in patients with pancreatic cancer via endoscopic placement of a biliary stent. Since the role of non-cover metal stent inside the biliary duct is not definitely clear, the aim of this study was to evaluate the recurrence of obstructive symptoms and quality of life after insertion of non-cover metal stent inside the biliary duct in patients with pancreatic cancer.

Methods: This retrospective descriptive-analytical study was conducted on 81 patients with pancreatic cancer who were referred to Mortaz and Shahaid Sadoughi Hospital. Factors such as pruritus, jaundice, appetite, stomachache and general situation were measured. Quality of life assessment was performed using the Functional Assessment of Cancer Therapy-Hepatobiliary questionnaire (version 4). Then, the quality of life score was classified in terms of median score (more and less than 18).

Results: Patients had a mean age of 72 ± 12.15 years. The most complete recovery among them was related to jaundice (54.3%) and pruritus (47.4%). Subjects had a mean quality of life score of 21.60 ± 6.24 . Moreover, the mean quality of life score of 37.2% and 62.8% of patients was less and more than the median value, respectively. In addition, there was no significant difference between frequency of recurrence in terms of variables including sex, age, death, chemotherapy, surgery, and quality of life ($p > 0.05$). The mean recurrence time was 6.9 ± 5.03 months.

Conclusion: According to our findings, the quality of life score of most patients using metal stent is higher than 18. Therefore, it seems that the use of metal stent can improve the quality of life score in these patients. Stenting also improves jaundice and pruritus in these subjects. In addition, because there is no significant relation between the frequency of recurrence with age, mortality, chemotherapy, and quality of life, it can be concluded that none of the above factors affects the frequency of recurrence among patients with pancreatic cancer.

Keywords: metal stent, pancreatic cancer, quality of life, recurrence of obstructive symptoms.

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INTRODUCTION

Pancreatic cancer is considered as the fourth leading cause of cancer in the United States (1-4). It is usually diagnosed after progression to a locally advanced or metastatic stage (1) and in 85-90% of cases, resection surgery is not possible. Moreover, the five-year survival rate of pancreatic cancer is 10-25%. Common symptoms include abdominal pain, pruritus, jaundice, loss of appetite and weight loss. Surgical resection has not been considered as a curative approach for patients with pancreatic cancer (4-8). Thus, in their treatment, palliative care is considered compared to curative care, because the goal is to improve quality, not quantity, of life. Chemotherapy and biliary stent placement are simply approaches meant to eliminate obstructive symptoms at the time of diagnosis. These kinds of therapies do not affect overall survival but improve the quality of life, including abdominal pain and jaundice. Placement of metal stent as an effective approach can eliminate these symptoms and improve the quality of life in these patients (5-8). There are two types of metal stents: covered and uncovered. Given that covered metal stents are not usually used due to stent migration, uncovered stents are preferred. Moreover, in some patients, tumor re-growth is seen in an uncovered stent, which leads to insertion of a second stent.

Non-surgical and non-metastatic tumors are also treated with gemcitabine chemotherapy; although chemotherapy is not a beneficial curative approach, it can affect the useful lifetime of the stent (8-10).

In addition, Functional Assessment of Cancer Therapy-Hepatobiliary (FACT Hep) is a questionnaire for evaluating the quality of life in patients with pancreatic cancer as well as colorectal, cholangiocarcinoma, primary and second liver cancer (11). Since few studies have been conducted on the quality of life after insertion of non-covered metal stent inside the biliary duct in patients with pancreatic cancer and the role of non-covered metal stent inside the biliary duct of these patients is not definitely clear, this study aimed to evaluate the recurrence of obstructive symptoms and the quality of life after insertion of non-covered metal stent inside the biliary duct in patients with pancreatic cancer. □

MATERIALS AND METHODS

This retrospective descriptive-analytical study was conducted on 81 patients with pancreatic cancer who were referred to Mortaz and Shahaid Sadoughi Hospital during 2012-2016. After receiving written consent from all subjects, the current study was approved by Shahid Sadoughi University of Medical Sciences. Patients with non-covered metal stent inside pancreas were included in the study, while those with incomplete documents were excluded. Information such as sex, age, chemotherapy and recurrence rate, jaundice, pruritus and appetite were extracted from patients' medical records.

Non-return of obstructive symptoms and death were considered as no recurrence. Each patient's quality of life was measured based on the score of FACT-Hep questionnaire such as pruritus, jaundice, appetite, weight loss, and general situation. Quality of life assessment was performed by using the FACT-Hep questionnaire (version 4) (11).

Items of FACT-Hep questionnaire are scored on a five-point scale (not at all=0; a little bit=1; 2=somewhat; quite a bit=3; and very much=4). Then, each patient's score was calculated. The range of scores was considered between 0 and 176. Higher scores indicate a higher quality of life. Number 18 was considered as median. Numbers greater than 18 were assumed to be desirable for the quality of life, while those smaller than 18 were assumed for poor quality of life.

Statistical analysis

Data were entered by using SPSS version 18 and statistical tests such as T test, Chi square test, Mann-Whitney test, Cox regression and Kaplan Meier estimator and log rank test were used. A P-value < 0.05 was considered to be statistically significant. □

RESULTS

In the current study, 81 pancreatic cancer patients with a mean age of 72 ± 12.15 were selected. Frequency of using stenting in these patients showed that 69 (86.6%) and 12 (13.6%) of subjects underwent stenting once and two times.

The frequency distribution of parameters including sex, age, death, chemotherapy and recurrence is summarized in Table 1.

Parameters		Number	Percent
Sex	Men	46	56.7
	Women	35	43.2
Chemotherapy	No	46	56.7
	Yes	35	43.2
Death	No	18	22.2
	Yes	63	77.8
Recurrence	No	69	85.2
	Yes	12	14.8
Age	Less than 70 years	36	44.5
	More than 70 years old	45	55.5

TABLE 1. Frequency distribution of parameters in patients with pancreatic cancer

Median	Number	Percent
Less than Median (< 18)	29	37.2
More than Median (≥ 18)	49	62.8
Total	78	100

TABLE 2. Frequency of quality of life score using FACT-Hep

Parameters	Recurrence		p-value
	No N (%)	Yes N (%)	
Sex			
Men	40(59.7)	6(42.8)	0.513
Women	27(40.3)	8 (57.1)	
Age			
Less than 70 years	31(46.3)	6(42.8)	0.533
More than 70 years	36(53.7)	8(57.14)	
Death			
Alive	14(20.3)	4 (33.3)	0.45
Dead	55(79.7)	8(66.7)	
Chemotherapy (missed value: 2)			
No	40(58.8)	5(45.5)	0.51
Yes	28(41.2)	6(54.5)	
Quality of life (missed value: 9)			
Incomplete recovery	19(31.1)	0	0.062
Partial recovery	32(52.5)	7(63.6)	
Complete recovery	10(16.4)	4(36.4)	

TABLE 3. Frequency of recurrence in terms of variables including sex, death, chemotherapy and surgery

Diagram 1 shows the classification of parameters including general situation, appetite status, jaundice, pruritus and stomach pain in terms of recovery, highlighting that the most complete recovery in these patients was related to jaundice (54.3%) and pruritus (47.4%).

The frequency of the quality of life score using FACT-Hep is shown in Table 2. Data was recorded only for 78 patients but it was missing for three subjects. The frequency of quality of life score using FACT-Hep showed that, compared to the median value, the score was greater in 37.2% of patients and smaller in 62.8% of subjects. Moreover, the mean quality of life score was 21.60±6.24.

Table 3 shows the frequency of recurrence in terms of variables including sex, death and chemotherapy.

The recurrence status according to sex, death, chemotherapy and surgery showed that there was no significant difference between the recurrence status in terms of sex, age, death, chemotherapy and quality of life (p>0.05).

The mean recurrence time in terms of age, sex and chemotherapy is shown in Table 4, where no significant difference was observed between the mean recurrence time in terms of age, sex and chemotherapy (p>0.05). □

DISCUSSION

In the current study, patients' quality of life score in terms of median score showed that the median score was greater than 18 in 62.8% of patients and smaller than 18 in 37.2%. of subjects. It seems that the frequency of people with a good quality of life was higher in patients who used metal stent. Ballinger *et al.* evaluated the quality of life after stenting in patients with pancreas cancer and observed improvements of their quality of life, which was consistent with our study (12). Barkay *et al.* (13) assessed the effect of stenting of malignant bile duct obstruction on the quality of life of patients undergoing endoscopic retrograde cholangiopancreatography and found that their quality of life improved. Sakai *et al.* used metal stent placement on a 66-year-old male patient with pancreatic cancer and described this intervention as an easy, secure, impressive, and less invasive procedure, ensuring a better quality of life (14). Therefore, according to our findings and those

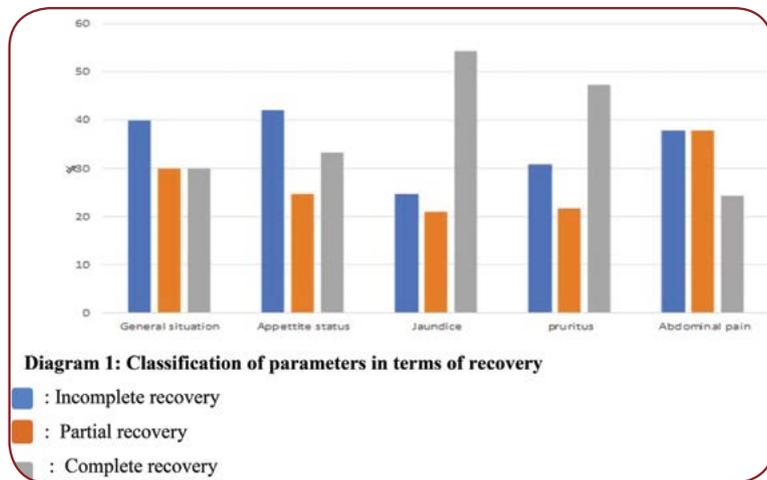


Diagram 1: Classification of parameters in terms of recovery

■ : Incomplete recovery
 ■ : Partial recovery
 ■ : Complete recovery

Parameters	Mean recurrence time (month)	p-value
Age		
Less than 70 years	9.8±6.2	0.126
More than 70 years	5.4±3.9	
Sex		
Men	6.8±4.2	0.465
Women	5.04±3.2	
Chemotherapy		
No	9.4±6.5	0.361
Yes	5.7±2.7	

TABLE 4. Mean recurrence time in terms of age, sex and chemotherapy

from other studies, it seems that stent insertion can be beneficial for these patients' quality of life.

Moreover, patients' frequency distribution in terms of jaundice showed that 44 (54.3%) out of 81 patients were fully recovered. Sydney *et al.* reported that using stenting as a palliative method could relieve jaundice in advanced cancer (15), which was consistent with our findings. In 2012, Boulay *et al.* stated that endoscopic placement of a biliary stent could relieve jaundice, which was also in accordance to our study (3). Ballinger *et al.* assessed symptoms after stenting for bile duct obstruction in patients with pancreatic cancer and reported that stent insertion relieved jaundice and pruritus, which was consistent with our study (12). In 2008, Hong *et al.* reported that metallic stent placement was a

practical and impressive palliative treatment for patients with obstructive jaundice (16).

Frequency distribution of all 81 patients showed a complete recovery in terms of pruritus (47.4% of subjects) and general situation (30%) after metal stent insertion. Singh *et al.* reported that stenting was a relatively secure method, with short hospitalization (17). In our study, classification of patients by jaundice showed that out of 81 patients, 54.3% have fully improved and 21% only partially improved. Ballinger *et al.* reported that stent insertion could relieve jaundice; also, a remarkable improvement was observed in pruritus after stenting (12).

Moreover, we applied a metal stent inside the biliary duct compared to plastic stent in order to evaluate the recurrence of obstructive symptoms and quality of life. The reason for choosing metal stent was that, according to the results of other studies, metal stent was superior to plastic stent. In 2003, Kaassis *et al.* evaluated metal and plastic stents for malignant constriction of the bile ducts in 118 patients with a mean age of 75 (18) and concluded that there was no significant difference between the two study groups in terms of survival; however, duration of hospitalization and antibiotic therapy were significantly higher in the plastic stent group, which is relevant for the superiority of metal stent (9). Yoon *et al.* reported that metal stents were superior to plastic stents due to their higher clinical success rate (19). Other studies have highlighted the performance of metal stent placement in patients with pancreatic cancer. Adam *et al.* evaluated the safety and efficacy of self-expandable metal stents (SEMS) in patients with pancreatic cancer (20) and showed that SEMSs were efficient and confident for attaining durable biliary drainage. Lee *et al.* reported that SEMS placement had a success rate of 94.7% and a performance rate of 84.2% (21). Walter *et al.* assessed the quality of life after metal stent insertion compared to plastic stent insertion in malignant bile duct obstruction and observed that SEMS placement was associated with better scores of health-related quality of life versus plastic stent placement (22). □

CONCLUSION

According to the current study results, the quality life score of most patients with metal stent is higher than 18. Therefore, it seems that

the use of metal stents can improve the quality of life score in these patients. Moreover, complications including jaundice and pruritus have greatly improved among subjects of our study. In addition, given that there is no significant relation between the frequency of recurrence and age, mortality, chemotherapy, and quality of life, it can be concluded that none of the above factors

affects the frequency of recurrence in patients with pancreatic cancer. □

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