

Demographic and Clinical Characteristics of Patients With Pancreatic Cancer, A Study in Kerman, Iran

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Abstract

Purpose

Pancreatic cancer (PC) has the worst prognosis among cancers and is the only cancer whose annual incidence is higher than its prevalence. Considering that many PC cases are annually diagnosed in the world, and the fact that the disease has the worst prognosis among cancers, and the prevalence of its risk factors such as diabetes, high-fat diets, smoking, population aging, etc. has been on the rise, the incidence of PC is expected to increase in the future. So, our aim was to assess the demographic features of PC patients in an Iranian population.

Methods

The present study was a descriptive cross-sectional research conducted in 2018 in the teaching hospitals affiliated with Kerman University of Medical Sciences (i.e., Afzalipour and Bahonar hospitals). The statistical population of this study was all the patients with PC, referring to these hospitals. The files of all the patients diagnosed with PC (confirmed clinically and pathologically) from the beginning of 2009 to the end of 2019 were assessed. Treatments (i.e., surgical tumor resection or other alternative treatments) were recorded into a data collection sheet. Finally, the data was entered into SPSS version 20 for performing statistical analyses.

Results

In this study, 380 patients with PC were studied, of whom 60.5% were male, and 39.5% female. Most of the patients were in the age range of 61-70 years (26.1%), and most of them were residents of Kerman city (62.9%), followed by Jiroft (5.5%) and Bam and Iranshahr (each 4.7%). A history of alcohol consumption was noted in 9.3%, and 33.7% were exposed to cigarette smoke. The most common symptoms of the patients were jaundice (65.3%), abdominal pain (54.7%), and anorexia (50.7%). The most common tumor location was the head of the pancreas (62.4%), and the most common type of the tumors was adenocarcinoma (71%). Overall, 23.7% and 76.3% of the patients underwent chemotherapy and surgery, respectively. Of those who had surgeries, 63.8% underwent palliative surgery. Of all 380 patients, 30 (7.8%) individuals were still alive, and 350 (91.4%) had died.

Conclusion

The results of this study showed that most of the PC patients were male, had an age between 61 and 70 years, and lived in Kerman and Jiroft cities. The most common tumor site was the pancreatic head, and the most common type of the tumors among both sexes was adenocarcinoma. Surgery, mostly palliative surgery, was the most frequent treatment of choice among all patients.

Introduction

Nowadays, gastrointestinal tumors are among the most common human cancers, killing thousands of people worldwide (1, 2). Nearly 200,000 new cases of pancreatic cancer (PC) are annually reported across the world. Most of these cancers (about 95%) originate from the excretory region of the pancreas (3). Pancreatic cancer has the worst prognosis among all cancers and is the only cancer whose annual incidence is higher than its prevalence (3). It is estimated that this cancer is responsible for around 30,000 deaths in the United States every year (4). In Iran, according to the reports of the Ministry of Health in 2003, 500 deaths were recorded in the country due to pancreatic and bile duct cancers(5).

The mean survival rate of PC patients after diagnosis is less than 6 months with a considerably lower rate in the people aged over 80 years (6). Numerous studies have mentioned several risk factors for PC, including demographic risk factors such as advanced age, male gender, race (higher mortality in blacks), genetic factors (e.g., family history, hereditary non-polyposis colorectal cancer), ataxia-telangiectasia, Potts-Jagger syndrome, gastrectomy, diabetes, chronic pancreatitis, as well as environmental risk factors including smoking, occupational threats, and the food cooking method (7). Smoking and advanced age are the only risk factors that confirmed in studies. (8). It has been estimated that smoking is responsible for 25 to 29% of PC cases (9).

The most common type of PC is pancreatic adenocarcinoma, which accounts for 85% of the cases. Because many PC cases are annually diagnosed across the world, and the fact that the disease has the worst prognosis among cancers, and the prevalence of its risk factors such as diabetes, high-fat diets, smoking, population aging, etc. has been on the rise, the incidence of PC is expected to increase in the future (10). Considering that there were no updated data about PC patients' demographic features in Kerman province (Iran), this study was conducted to divulge these features in this region of the country.

Methods

The present study was a descriptive cross-sectional research conducted in the teaching hospitals affiliated with Kerman University of Medical Sciences (i.e., Afzalipour and Bahonar hospitals) in 2018. The study's statistical population included all the PC patients referred to the mentioned hospitals. The pathological and clinical data of all the patients diagnosed with PC from the beginning of 2009 to the end of 2019 (either those who underwent surgical tumor resection or those who received other alternative therapies) were recorded. Furthermore, patients' information such as age, sex, place of residence, type and date of surgery, date of hospitalization, surgery report, duration of chemotherapy or radiotherapy, symptoms and associated comorbidities, and pathology report were gathered. This study was approved by the Ethics Committee of Kerman University of Medical Sciences. Patients' names and other information were kept confidential. Finally, the data was entered into SPSS 20 software and analyzed.

Results

The current study was conducted to investigate the demographic characteristics of patients with PC in Kerman province (Iran), diagnosed during 2009–2019. Sampling was conducted via the census method

to enroll all the patients diagnosed with this cancer during the study period. Overall, 380 patients with PC were examined, of whom 230 (60.5%) were male, and 150 (39.5%) were female. According to Table 1, most of the patients had an age between 61 to 70 years (26.1%). Among the patients, 36 (9.3%) had a history of alcohol consumption, of whom 22 (9.6%) were male, and 14 (9.3%) were female. Also, 129 (33.7%) patients had been exposed to smoke, of whom 70 (30.4%) and 59 (39.3%) were men and women, respectively.

Table 1
Distribution of different age groups in patients with pancreatic cancer

Age group (years)	Number (N = 380)	Percentage
1-10	0	0
11-20	8	2.1
21-30	20	5.2
31-40	24	6.3
41-50	40	10.4
51-60	74	19.3
61-70	100	26.1
71-80	85	22.2
81-90	26	7.6

Regarding clinical symptoms and associated comorbidities, the results showed that the most common symptoms in the patients were jaundice (65.3%), abdominal pain (54.7%), and anorexia (50.7%). The least frequent symptom was pruritus (35.2%). Also, 160 (41.8%) patients demonstrated different underlying diseases, and a history of gallstones was noted in 117 (30.5%) cases (Table 2).

Table 2
The prevalence of clinical symptoms in the studied patients

Symptoms	Number	Percentage
Abdominal pain	208	54.7
Vomit	136	35.5
Jaundice	250	65.3
Anorexia	194	50.7
Pruritus	135	35.2
Weight loss	189	49.3
Underlying disease	160	41.8
Gallstones	117	30.5

As shown in Fig. 1, the most common location of tumor was the pancreas head (62.4%), followed by total (21.7%), the body (10.2%), and tail (5%).

The most common tumor types included adenocarcinoma (270, 71%), metastatic cancer (102, 26.9%), and finally endocrine tumors (8, 2.1%). Regarding the stage of tumors at the time of diagnosis, most patients were at the stage IV (67.6%) (Table 3).

Table 3
Pancreatic tumor stage at the time of diagnosis

Tumor stage at diagnosis	Number	Percentage
0	0	0
I	6	1.6
II	25	6.6
III	92	24.2
IV	257	67.6

According to Table 4, 290 (76.3%) underwent surgery, including 185 (63.8%) cases of palliative surgery and 105 (36.2%) cases of whipple surgery.

Table 4
The types of treatments performed for patients with pancreatic cancer

Treatments	Number	Percentage
Palliative surgery	185	63.8
Whipple surgery	105	36.2
Chemotherapy	90	23.7

From a total of 380 patients, 30 (7.8%) were still alive whom all of them were diagnosed less than a year ago. Also, 350 (91.4%) had died during two years after diagnosis. Univariate regression showed that the survival rate in women was 2.27 times that of men. Also, survival rate in those who had gallstones was 1.858 times that of those who did not have gallstones. Patients who had palliative surgery showed 5.149 times higher survival than that of the patients who had no surgery. Finally, multivariate regression analysis predicted a survival rate of 2.679 times higher in patients without any underlying disease, while those who received chemotherapy had a survival rate of 0.096 compared to the patients who underwent surgery.

Discussion

The present study was a cross-sectional descriptive research aiming to investigate the clinical and demographic features of patients with PC in Kerman province, south-east of Iran, during 2009–2019. The study population included all the patients referred to the surgery wards of Afzalipour and Bahonar hospitals of Kerman, selected by census. A total of 380 patients, including 230 (60.5%) men and 150 (39.5%) women, were assessed in the present study.

Most patients were in the age group of 61–70 years while the lowest ratio was related to the age group of 11–20 years. In accordance with our study, in a report by Raju et al., the mean age of patients at diagnosis was 70.3 ± 12.5 years (11). Most of the patients studied here lived in Kerman, followed by Jiroft and Bam cities. The least proportions of the patients were from Shahr-e-Babak and Baft cities.

Among the patients studied, 9.3% consumed alcohol, of whom 9.6% were men, and 9.3% were women. Furthermore, 33.7% of the patients were exposed to cigarette smoke, of whom 30.4% were men, and 39.3% were women. In agreement with these observations of ours, Shakeri et al. in their study showed that opium usage and alcohol consumption were associated with an elevated risk of PC; nevertheless, they found no association between smoking and the risk of this cancer (12).

The results of this study showed that the most common symptoms in PC patients were jaundice (65.3%), abdominal pain (54.7%), and anorexia (50.7%), respectively. On the other hand, pruritus, with a prevalence of 35.2%, was the least prevalent symptom among our PC patients. Among the patients, 41.8% had a history of various underlying diseases, and 30.5% of them also revealed a history of gallstones.

Our results showed that the most common site of tumor involvement was the pancreatic head (62.4%), and the most common tumor type was adenocarcinoma which was observed in 71% of the patients. Moreover, our results showed that most of the pancreatic tumors were at stage IV (67.6%) at the time of diagnosis, indicating the late referral of patients for receiving treatments and undergoing surgery. According to the study of Yadav et al. who assessed patients' demographic features and survival, as well as tumor characteristics in 57,688 patients with pancreatic adenocarcinoma and pancreatic neuroendocrine cancer (13), the 5-year survival rates of the patients were 51.3% and 5%, respectively, showing a lower survival rate compared to the present study.

Considering the types of the treatments performed for the patients, our results showed that 23.7% of the patients underwent chemotherapy, and 76.3% of them were treated with surgery. This was while none of the patients received radiation therapy. For both genders, surgery, mostly palliative surgery, was the most frequent treatment of choice in our PC patients.

In our study, most patients died within the first year after illness, regardless of the type of treatment. The factors such as female gender, history of gallstones, undergoing palliative surgery or chemotherapy, and history of underlying diseases increased patients' survival rates. In comparison, Yang et al. in their study introduced the main determinants of survival as age, sex, tumor size, functional stage, metastasis, and margin surgery (14). Also, Raju et al. reported a 5-year survival rate of 7.2% (12.8% for patients under 60 years of age and 3.6% for those over the age of 80 years). In addition, survival rates varied according to the age, sex, site of pancreatic involvement, associated comorbidities, and residency (i.e., urban vs. rural areas) (11).

Conclusion

The results of the present study showed that most of the patients diagnosed with PC were males, belonged to the age group of 61–70 years. The pancreas head was the most common site of tumor involvement in both genders. The most common type of tumor in both men and women was adenocarcinoma. Palliative surgery was the most used treatment among all patients. Factors such as female gender, a history of gallstones, receiving palliative surgery or chemotherapy, and a history of underlying diseases were associated with increased survival rates in the patients.

Declarations

Ethical approval: This study was approved by the Ethics Committee of Kerman University of Medical Sciences.

Conflict of Interest: None.

Funding: None

Authors' contribution: Maryam Kouhestani Parizi designed the study, Mohammad Shafiee, Maryam Kouhestani Parizi, Akram Arabi, Mohammad Reza Lashkarizadeh, and Mehran Ebrahimi Shah-abadi collecting the data. Akram Arabi and Sanaz Zand write the article. Sanaz Zand analyzed the data.

Data Availability: The data file and analyze is available for sharing

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Figures

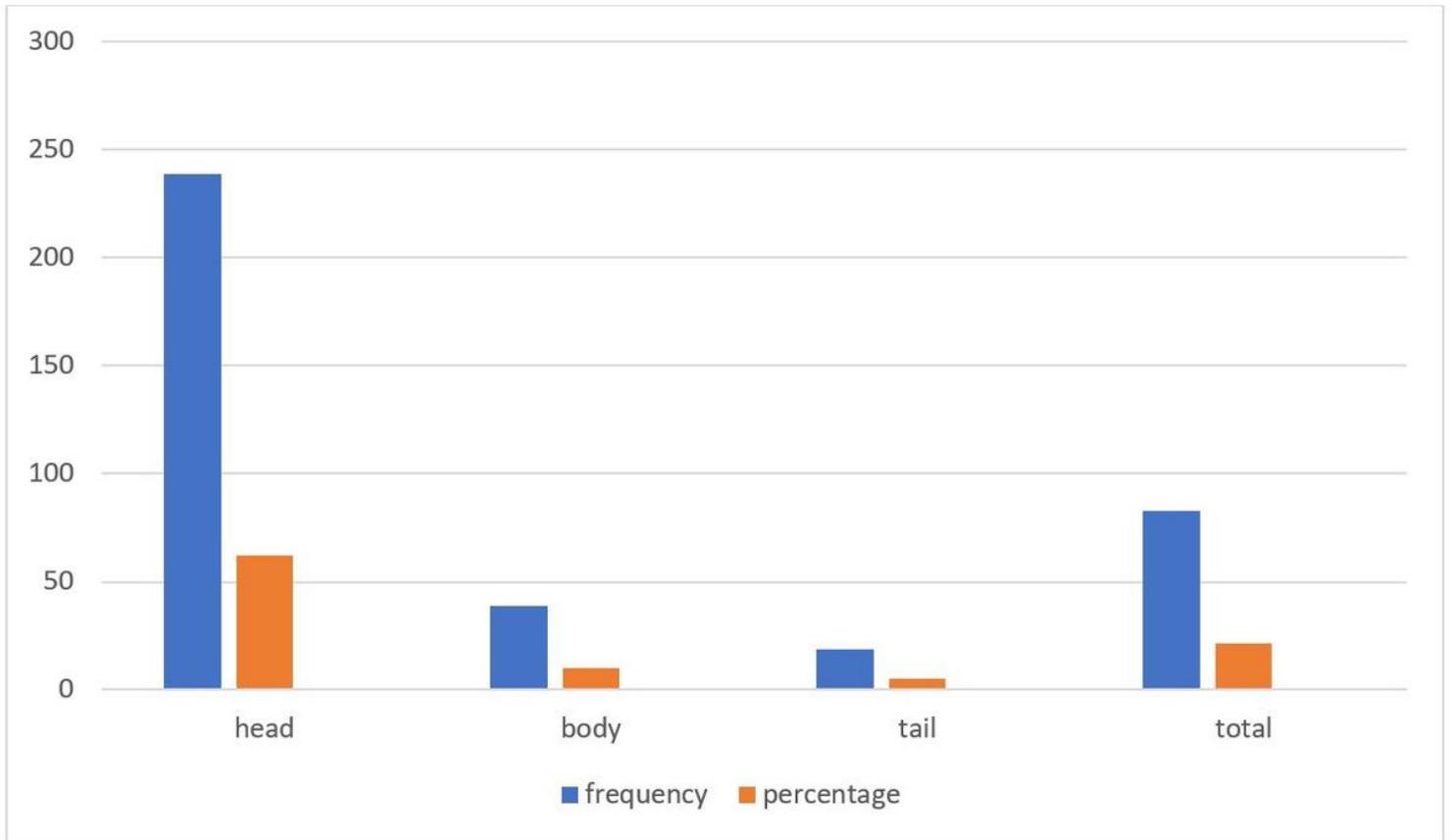


Figure 1

Tumor locations in patients with pancreatic cancer