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EXOCRINE PANCREATIC CANCER IN NINEVEH GOVERNORATE

[1]*Dr. Nashwan Ahmed Al-Yamoor, [2]Dr. Aws Nezar Thanoon Al-Dabagh, [3]Dr. Khalid Abdulkader Hamed Al-Dabbagh

[1]M.B.Ch.B/C.A.B.S./ F.I.C.M.S. Mosul General Hospital.
[2]M.B.Ch.B/C.A.B.S. Mosul General Hospital.
[3]M.B.Ch.B/ F.I.C.M.S. Lecturer, College of Dentistry, Al-Hadba University.

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***Corresponding Author: Dr. Nashwan Ahmed Al-Yamoor**

M.B.Ch.B/C.A.B.S./ F.I.C.M.S. Mosul General Hospital.

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ABSTRACT

Background: Pancreatic cancer is a very aggressive tumor with an extremely poor prognosis. Surgical resection of pancreatic cancer is the only possible cure option; however small number of patients are suitable for surgery upon diagnosis. Chemotherapy, radiation treatment, and palliative care are all possibilities for managing symptoms and improving quality of life in advanced tumor cases. **Objectives:** The aim of this study was to evaluate the clinical presentation, associated factors, anatomical sites, possible treatment options of pancreatic tumor in Mosul city. **Methods:** The study included 116 patients diagnosed with pancreatic cancers during the study period. The study questionnaire was consisted from eight parts. Part one for the sociodemographic information of the patients. Part two for patients' clinical presentation. Part three for patients associated factors. Part four for patients' investigations. Part five for patients' anatomical site of tumor. Part six for patients' tumor origin. Part seven for tumor metastasis site and part eight for patients' received treatment. **Results:** The mean age of the study patients was 61.32 years, 60.3% were males and 39.7% were females. The study explored that the majority of patients presented with abdominal pain and weight loss. Moreover, most of patients suffered from epigastric pain. Pancreatic cancer shown to be associated with smoking, diabetes, alcohol, previous gall bladder diseases, radiation, previous gastric surgery, genetic factors and chronic pancreatitis. Surgical treatment of pancreatic cancer should focus on palliative care for obstructive jaundice. **Conclusion:** The study conclude that pancreatic cancer is one of the cancers that are diagnosed late and the best way to reduce the mortality rate from this disease is prevention and early diagnosis while it is in its early stages.

KEYWORDS: Cancer, Iraq, Mosul, Pancreas.

INTRODUCTION

Pancreatic cancer is a very aggressive tumor with an extremely poor prognosis.[1] Actually, patients with pancreatic cancer have an extremely low 5-year overall survival rate of approximately 6%.[2] The primary cause of this poor prognosis is because pancreatic cancer is typically discovered at an advanced stage, at which time a curative treatment strategy is no longer possible.[3] Only 20% of newly diagnosed pancreatic cancer patients are eligible for surgical resection with curative results.[4] The 5-year overall survival rates for individuals with incurable pancreatic cancer have only slightly improved over the past few decades, indicating a modest rate of treatment advancement.[5]

Pancreatic cancer was the 14th most frequently diagnosed cancer in the world in 2018, yet it was also the 7th leading cause of cancer-related mortality.[6] In 2018, the age-standardized incidence rate (ASIR) of pancreatic cancer was 4.8 per 100,000 people worldwide. The worldwide ASIR indicating a slight male predominance. Furthermore, pancreatic cancer primarily affects elderly people.[7] Pancreatic cancer incidence and mortality rates rise with age, with the great majority of patients being

diagnosed beyond the age of 55, and the median age at diagnosis being close to 70 years.[8]

Smoking, chronic pancreatitis, diabetes, and genetic predispositions all increase the risk of developing pancreatic cancer.[9] Pancreatic cancer manifested as jaundice, weight loss, and abdominal or back discomfort.[10] The majority of pancreatic malignancies are adenocarcinomas that originate in the exocrine pancreas.[11]

Surgical resection is the only possible cure, however just a small number of patients are suitable for surgery upon diagnosis.[1] Chemotherapy, radiation treatment, and palliative care are all possibilities for managing symptoms and improving quality of life in advanced tumor cases. Targeted treatments and immunotherapy are among the novel therapeutic techniques being investigated.[12]

This study aims to evaluate the clinical presentation, associated factors, anatomical sites, treatment options of pancreatic tumor in Mosul city-Iraq.

MATERIALS AND METHODS

This is a retrospective, descriptive study. It was conducted between the 1st of February 2018 to the end of January 2025 at Mosul General Hospital, Al Salam and AL Jamhori Teaching Hospitals. The study included 116 patients diagnosed with pancreatic cancers during the study period.

The study questionnaire was consisted from eight parts. Part one for the sociodemographic information of the patients. Part two for patients' clinical presentation. Part three for patients associated factors. Part four for patients' investigations. Part five for patients' anatomical site of tumor. Part six for patients' tumor origin. Part seven for tumor metastasis site and part eight for patients' received treatment.

Statistical analysis was conducted using SPSS version 30.0 (SPSS Inc., Chicago, USA). Quantitative data were presented as mean ± standard deviation. Qualitative data were presented as frequency and percentages.

RESULTS AND DISCUSSION

The study included 116 patients, the mean age ± standard deviation of the study participants was 61.32 ± 9.27 years. Of them 70 (60.3%) were males and 46 (39.7%) were females with male to female ratio of 1.52:1. As shown in figure 1.

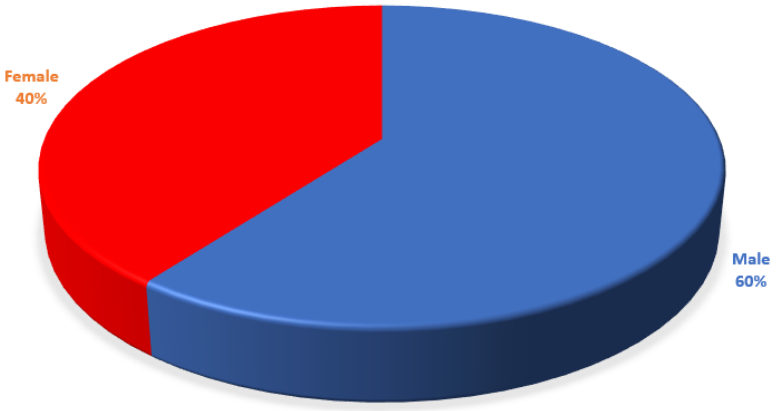

Figure 1: Distribution of the study patients according to their gender.

Moreover, the majority of the study patients aged between 50 and 70 years as shown in table 1.

Table 1: Age distribution of the study patients. (number =116).

Age group	Number =116	Percent
20-29	2	1.7%
30-39	3	2.5%
40-49	20	17.2%
50-59	42	36.2%
60-69	30	25.8%
70-79	8	6.8%
Equal to or more than 80	1	0.8%
Total	116	100%

These findings are in agreement with other studies' findings.[13-14] Indicating that pancreatic cancer being most common in older adults. However, in spite of pancreatic cancer incidence increase with age, other factors could play a significant role as well, so pancreatic cancer is present in various ages.

The study explored that patients with pancreatic cancer presented with various form, such as abdominal pain, weight loss, loss of appetite, accidental hepatomegaly, nausea, vomiting, gall bladder dilatation and abdominal mass, with descending order as shown in table 2. Comparable findings obtained by Puckett and Garfield study's findings.[15] These clinical manifestations might vary based on the study population, tumor location, and stage of disease. For example, tumors near the head of

pancreas are more likely to induce jaundice and gallbladder problems at early stages, but tumors in the body or tail of pancreas are usually presented with abdominal pain.[16]

Table 2: Patients' clinical manifestations. (number =116).

Age group	Number =116	Percent
Abdominal pain	102	90%
Weight loss	79	68%
Loss of appetite	71	61.2%
Nausea	50	43%
Vomiting	44	40%
Jaundice	10	8.6%
Accidental hepatomegaly	53	45.6%
Gall bladder dilatation	44	37.9%
Abdominal mass	30	25.8%

The study shows that the majority of patients suffered from epigastric pain, followed by back pain, right and left hypochondrial pain respectively, as shown in table 3. As the tumor grows and potentially spreads to nearby nerves and the celiac plexus. It is important to note that not all patients experience pain, and the pain can vary greatly in severity and location of tumor. Bowles et al report similar findings.[17]

Table 3: Site of pain reported by the study patients. (number =116).

Site of pain	Number =116	Percent
Epigastric pain	64	55.1%
Back pain	49	42.2%
Right hypochondrial pain	36	31%
Left hypochondrial pain	4	3.4%

Pancreatic cancer shown in this study to be associated with many factors such as smoking, diabetes mellitus, alcohol, previous gall bladder diseases, radiation, previous gastric surgery, genetic factors and chronic pancreatitis, with descending order as shown in table 4. While smoking is the most significant lifestyle factor, chronic pancreatitis causes long-term inflammation that can lead to genetic damage. Other studies consistently show that smoking, certain genetic mutations, and chronic pancreatitis are among the strongest risk factors for pancreatic cancer.[18,9]

Table 4: Patients' associated factors. (number =116).

Associated factors	Number =116	Percent
Smoking	74	63.7%
Diabetes mellitus	12	10.3%
Alcoholism	10	8.6%
Previous gall bladder diseases	8	6.8%
Radiation	7	6%
Previous gastric surgery	3	2.5%
Genetic factors	2	1.7%
Chronic pancreatitis	2	1.7%

The study found that patients with pancreatic cancer already diagnosed by different diagnostic methods, such as laparotomy, trans-abdominal ultrasound, their clinical presentation, tissue biopsy with lesser extent by barium contrast, CT-scan, fine needle biopsy and MRI. However, this could depend on the tumor's location, size, and spread, which are identified through various diagnostic methods. Several studies talk about the diagnostic methods of pancreatic cancer[19,15] shows similar findings.

Table 5: Patients' diagnostic method. (number =116).

Diagnostic method	Number =116	Percent
Laparotomy	79	68%
Trans-abdominal ultrasound	68	58.6%
Patients' clinical presentation	65	56%
Tissue biopsy	50	43.1%
Barim contrast	15	12.9%
Computed tomography	10	8.6%
Fine needle biopsy	7	6%
Magnetic Resonance cholangiopancreatography	7	6%

Table 6 shows that more than two third of the study patients had cancer in their head of pancreas, while pancreatic body and tail showed less frequent percentages which runs with Feldman et al study finding.[20] This is likely because tumors in the head cause symptoms like jaundice earlier due to their proximity to the common bile duct, making them more likely to be detected sooner.

Table 6: Patients' anatomical site of tumor. (number =116).

Site of tumor	Number =116	Percent
Head of pancreas	79	68.1%
Pancreatic body	22	18.9%
Pancreatic tail	15	12.9%

On the other hand, the study found that the majority of patients with pancreatic cancer were poorly-differentiated, and to less extend both moderate and well

differentiated cancer tissue morphology, as shown in table 7. Which agrees with Basturk et al study results.[21] This indicates that the majority of patients having higher grade of cancer with a higher potential for growth and spread at time of diagnosis.

Table 7: Patients' tumor differentiations. (number =116).

Tumor differentiation	Number =116	Percent
Well-differentiated	12	10.3%
Moderately-differentiated	21	18.1%
Poorly-differentiated	83	71.6%

Additionally, the study found that the liver was the most frequent site of pancreatic cancer metastasis, followed by portal veins and mesenteric vessels, local lymph nodes, duodenum, peritoneum, greater omentum and stomach. Sporadic cases were metastasized to the hepatic portal and umbilicus, as shown in table 8. Levine et also reported that the liver is the most frequent metastasis site due to the portal vein circulation which drains the pancreas.[22]

Table 8: Tumor metastasis site. (number =116).

Metastasis site	Number =116	Percent
Liver	21	18.1%
Portal vein + mesenteric vessels	15	12.9%
Local lymph nodes	12	10.3%
Duodenum	8	6.8%
Peritoneum	7	6%
Greater omentum	5	4.3%
Stomach	2	1.7%
Hepatic portal	1	0.8%
Umbilicus	1	0.8%
Spleen	1	0.8%

Table 9 shows the treatment option received by the study patients. About half of the study patients did cholecystojejunal anastomosis alone or with jejunojejunostomy followed by cholecystojejunal anastomosis with gastrojejunostomy, choledochoduodenostomy and pancreatojejunostomy. These complex surgical procedures, specifically a form of palliative surgery for advanced pancreatic cancer, involving a combination of anastomoses. The core of the procedures is creating new pathways for digestive and biliary fluids to bypass a blockage (obstructive jaundice) caused by the tumor. |Consistent findings obtained by Kudo et al study.[23]

Table 9: Patients' received treatment. (number =116).

Received treatment	Number =116	Percent
Cholecystojejunal anastomosis alone or with jejunojejunostomy	57	49.1%
Cholecystojejunal anastomosis with gastrojejunostomy	16	13.7%
Choledochoduodenostomy	3	2.5%
Pancreatojejunostomy	2	1.7%

The study had some limitations. First, it was an observational study. The second limitation was the results were based on Iraqi population. Whether the same results would be observed in another ethnic group, remains questionable. Finally, the study included a relatively few patients.

5- CONCLUSION

The study conclude that pancreatic cancer is one of the cancers that are diagnosed late and the best way to reduce the mortality rate from this disease is prevention and early diagnosis while it is in its early stages. This is done through public awareness, such as avoiding factors that contribute to the occurrence of the disease such as stop smoking and other carcinogens. It is recommended to do periodic screening for high-risk patients with a pancreatic and biliary duct endoscopy device or by serum markers such as CEA to diagnose cancer at early stages.

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