Online ISSN: 2682-2628 Print ISSN: 2682-261X



CBR

INTERNATIONAL JOURNAL OF CANCER AND BIOMEDICAL RESEARCH

https://jcbr.journals.ekb.eg Editor-in-chief Prof. Mohamed Labib Salem, PhD

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RESEARCH ARTICLE

Clinico-Epidemiological Study of Pancreatic, Gall Bladder and Biliary Tract Cancers at Clinical Oncology Department Tanta University Hospitals

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Clinical Oncology & Nuclear Medicine Department, Faculty of Medicine, Tanta University, Egypt

ABSTRACT

Background: In Egypt, pancreatic cancer (PC) is the 11th most prevalent malignancy and represents 2.2% of all cancers. PCs cause 3.2% of cancer deaths, ranking 8th. Gall bladder cancers represents about 0.70% of malignancies in Egypt, accounting for 0.77% of cancer deaths. In Gharbia governorate, Gall bladder cancers account for 0.8% and 0.7%, of male malignancies females, respectively. Aim: The aims of this retrospective study is to determine the incidence of pancreatic, gall bladder and biliary tract cancers (BTCs), describe the clinico-pathological pattern of pancreatic, gall bladder and BTCs, and detect progression free survival (PFS), disease free survival (DFS), and overall survival (OS) in correlation with the prognostic factors. Patients and Methods: This retrospective hospital-based clinico-epidemiological study was carried out on 299 patients who were histo-pathological proved pancreatic or biliary tract malignancies through the period from Jan 2015 to Dec 2020 at Clinical Oncology Department Tanta university Hospital, Egypt. Results: The estimated median OS for PC patients was 8 months which was statistically significant better in patients with T1/2, N0, M0 and curative surgical resection, while the estimated median PFS was 4 months with statistically significant better in patients with initial low CA19.9 (<37 U/ml) and in pancreatic body site and the estimated median DFS was 7 months with statistically significant better in NO and initial low CA19.9 (<37U/ml). As regard BTC, the estimated median OS was 12 months with statistically significant better in patients with T1/2, N0, M0 and grade 2 tumors, the estimated median PFS was 3 with statistically significant better in patients with T1/2, NO, MO, low initial CA19.9 (<37U/ml) and ampulla of vater site while the estimated median DFS was 5 months with statistically significant better in patients with NO. Conclusions: We advocate for the use of genetic counselling to educate families about specific genetic disorders, the risks and advantages, disease management, and potential treatment choices. Multidisciplinary working groups should be established for adequate management.

Keywords: Biliary tract cancer, Disease-free survival, Gall bladder, Overall survival, Pancreatic cancer, Progression free survival

Editor-in-Chief: Prof. M.L. Salem, PhD - Article DOI: 10.21608/JCBR.2023.220856.1307

INTRODUCTION

Pancreatic cancer (PC) is an intractable malignancy and is the seventh leading cause of global cancer deaths in industrialized countries, and the third most common in the USA. Based on GLOBOCAN 2020 estimates, PC has ranked the 12th most common cancer in the world counting 495,773 new cases and causing 466,003 deaths in 2020. Worldwide incidence and mortality of PC correlate with increasing age and is slightly more common in men than in women (Sung H. et al., 2021).

In Egypt, according to incidence rate; the PCs are the 11th most common malignancies and represent 2.2% of all cancers incidence. While according to mortality rate, PCs are the 8th of all deaths caused by cancer and represent 3.2% (Sung H. et al., 2021, Ferlay J. et al., 2021). In Gharbiah, PCs account for 3.2% of malignancies in males versus 1.6% in females (Ramadan M. and Hablas A., 2014). The percentage of the death certificate only (DCO) cases is comparable between the Gharbia Population-Based Cancer Registry (GPCR) (5.5% in men and 4.7% in

IJCBR (jcbr.journals.ekb.eg) is published by Egyptian Society of Cancer Research (eacr.tanta.edu.eg) and sponsored by the Egyptian Knowledge Bank (www.ekb.eg)

ARTICLE INFO

Article history Received: July 05, 2023 Revised: July 29, 2023 Accepted: October 26, 2023

Correspondence to Zeinab M. Abdelwahed

Clinical Oncology & Nuclear Medicine Department , Faculty of Medicine, Tanta University, Tanta, Egypt Tel.: 00201206933744 Email: zeinabmohamedabdelwahed@gmail.com

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©2023 Zeinab M. Abdelwahed, Sara A. Darwish, Nehal M. El Mashad and Hesham A. Tawfik. This is an Open Access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any format provided that the original work is properly cited. women), compared to the Surveillance Epidemiology and End Results (SEER) registries (2.5% and 3.4%, respectively) (Bray F. et al., 2015).

Biliary tract cancers (BTC) represent the second most common type of hepatobiliary cancer worldwide, and are typically classified as cholangiocarcinoma intrahepatic (iCCA), perhilar/hilarcholangiocarcinoma (pCCA), distal cholangiocarcinoma (dCCA) and gallbladder cancer (Marcano-Bonilla L. et al., 2016). Globally, the burden of gallbladder and other BTCs has risen over the last 30 years (Ouyang G., et al., 2021). In 2013, the Global Burden of Disease study showed 139,500 deaths due to BTC, reflecting a 22% increase from the estimated 115,400 deaths in 1990; equivalent to age-standardized death rates of 2.3 per 100,000 per year and 3.4 per 100,000 per year (Marcano-Bonilla L. et al., 2016).

In Egypt, according to the incidence rate, the gall bladder cancers represent 0.70% of all cancers incidence. While according to mortality rate; it represents 0.77% of all cancer deaths (Sung H. et al., 2021, Ferlay J. et al., 2021). In Gharbiah governorate, Egypt, Gallbladder cancers account for 0.8 %of malignancies in males versus 0.7% in females (Ramadan M. and Hablas A., 2014).

Although the cause of PC is complex and multifactorial, cigarette smoking and family history are dominant (Rawla P. et al., 2019). As regard BTC, the risk factors are most strongly associated with are those characterized by chronic inflammatory states, such as primary sclerosing cholangitis (PSC), chronic biliary tract infection [e.g., Salmonella typhi (S. typhi), Opisthorchisviverrini (0. viverrini), Clonorchissinensis (C. sinensis), hepatitis B virus and hepatitis C virus (HBV), (HCV)], asymptomatic stone disease, and diabetes mellitus, among others. Hereditary factors may also play a role, and gene-environment interactions might be important in the pathogenesis of BTC. Thus, BTC, like most other cancers, is a complex disease resulting from the combination of familial genetic predisposition and certain environmental factors (Marcano-Bonilla L. et al., 2016). This retrospective study aimed to determine the incidence of pancreatic,

gall bladder and BTCs, to describe the clinicopathological pattern of pancreatic, gall bladder and BTCs, and detect progression free survival (PFS), disease free survival (DFS), and overall survival (OS) in correlation with prognostic factors.

PATIENTS AND METHODS

This retrospective hospital based clinicoepidemiological study was carried out on 299 patients who were histo-pathological proved pancreatic or biliary tract malignancies through the period from Jan 2015 to Dec 2020 at Clinical Oncology Department Tanta university Hospital, Egypt. An approval from ethical committee of the faculty of medicine, Tanta university was obtained, approval code (34250/11/20). Exclusion criteria were patients less than 18 years old, and patients with second primary rather than pancreatic or biliary tract malignancies.

Patient evaluation

The medical files were revised for personal history (age, sex, occupation, residence, marital status, personal habits), history of the illness (the malignant disease), past history and others diabetes co-morbidity (e.g., mellitus, hypertension, cardiac disease, etc.), family history, general examination which includes general appearance, vital signs, head &neck, chest, upper and lower limb examination, local examination which includes abdomen and pelvic examination, pathologically proven by biopsies (using percutaneous needle biopsy under imaging guidance (FNA) or ERCP or EUS or laparoscopy) or surgical resection, laboratory investigations including amylase and lipase blood level, and tumor markers (e.g., CEA and CA19.9), radiological investigations, genetic testing such as BRCA mutations, and treatment lines.

Patients follow up

Details of the follow up either clinical, radiological or laboratory was revised evaluating response, progression, and complication of the treatment. All patients were followed by telephone, short message, and review of patient medical records. Survival time was measured in months.

Statistical Methods

The data was collected, complied, and analysed using percentage, mean and median using statistical package for social science (SPSS) version 21. The numerical variables were presented as mean and standard deviation. For categorical variable the number and percentage were calculated. The P value for significance was adopted at < 0.05. PFS (PFS) was calculated from the date of start of treatment till progression occurs according to recist criteria v 1.1. Disease- free survival (DFS) was defined as the interval between date of start of treatment and either recurrence or occurrence of metastasis. OS (OAS) was defined as the interval between date of start of treatment and date of last visit or date of death, independent of the cause of death. PFS, DFS and OS were expressed using Kaplan Meier method. The log-rank test (univariate analysis) was used to compare the difference among the groups.

RESULTS

PC ranked the 10th in the list of most frequently diagnosed cancers over the period (2015,2017-2020) while was the 7th in 2016. The annual incidence of PC was noticed; in 2015, a total of 54 (2.5%) cases of the total reported cancer cases in this year. By 2016, this increased to 72 (4.0%) cases. In 2017, 2018, and 2019 this figure dropped to 55 (3.1%), 50 (3.3%) and 54 (3.1%) cases, respectively after which we observed 41cases (2.4%) in 2020. On average, the yearly number of PC patients over the 6-year period was nearly 54 cases. BTCs were the least frequent type of malignancies over the period (2015-2019) which ranged from (0.3 %to 0.7 %) while no reported cases were found in the year 2020 (Figure 1).

Pancreatic cancer group

The distribution of 264 PC patients in Egypt's governorates. Most cases were from Gharbia which represented 180 (68.2%) cases. The estimated median OS of PC patients which was 8 months, also 6 month and one-year OS was reported in 65.3% and 20.5 % of these patients respectively. The estimated median PFS for PC cases which was 4 month and about 13.2% of these patients had 6-month PFS.

The estimated median DFS of PC cases which was 7 months, also 65.7% of these patients had 6month DFS (Figure 2).



Figure 1. The incidence of different types of cancer over the period (2015-2020).



Figure 2. Kaplan-Meier survival curve for OS (a), PFS of first line treatment (b), and DFS (c) in pancreas group.

The tumor size, nodal status, presence of distant metastasis and line of treatment were the main parameters that affect OS which were statistically significant (P <0.001). The six month and one-year OS were better in PC patients who were T1/2 than those who were T3/4 and it was 87.6%, 51.4%, and 60.1%, 12.9%, respectively and the difference was statistically significant (P <0.001).

Also, better in patients who did not have nodal infiltration (N0) and in those who were N1/2 were 68.7%, 25.7%, and 67.1%, 18.9%, respectively and the difference was statistically significant (P<0.001). Presence of distant metastasis (M1) was statistically significant worse in 6 month and 1-year OS than those who

did not have any metastasis (M0) with significant P value <0.001. Six-month and oneyear OS in patients who underwent curative surgical resection were better than others and the difference was statistically significant (P<0.001) (Table 1).

The initial CA19.9 level and primary tumor site were the main parameters that affect PFS which were statistically significant (P=0.035,0.005 respectively). Six-month PFS in patients who had initial low CA19.9 level (<37U/ml) was better than those who had high level(\geq 37U/ml), 28% and 6.5% respectively and the difference was statistically significant (P=0.035). The sixmonth PFS was the best in pancreatic body tumors with significant p value 0.005 (Table 2).

	Total	Mean	Median	6	1	End	Log ı	ank
	No.	(months)	(months)	Month %	Year%	Study%	χ ²	р
Size of mass								
Тх	20	6.46	6.0	46.6	9.3	0.0	31.672*	< 0.001*
T1/2	55	15.97	14.0	87.6	51.4	0.0		
T3/4	165	8.09	7.0	60.1	12.9	1.5		
No. of LNS								
Nx	16	6.10	3.0	34.1	17.0	0.0	17.487*	< 0.001*
NO	71	13.29	9.0	68.7	25.7	0.0		
N1/N2	153	8.76	8.0	67.1	18.9	0.0		
Distant Mets								
Mx	3	3.33	3.0	33.3	33.3	33.3	65.622 [*]	< 0.001*
M0	78	19.64	17.0	93.8	58.1	0.0		
M1	159	7.25	7.0	53.3	9.4	0.0		
Grade								
Grade I	8	9.75	-	75.0	75.0	75.0	7.281	0.063
Grade II	131	10.18	9.0	72.2	19.4	0.0		
Grade III	94	8.33	7.0	53.9	20.6	3.8		
Unknown	7	7.0	7.0	66.7	0.0	0.0		
Initial CA19.9								
Low(<37U/ml)	39	12.79	11.0	79.3	41.6	0.0	5.384	0.068
High(≥37U/ml)	157	8.54	8.0	64.0	13.5	4.9		
Not reporter	44	9.26	10.0	56.7	27.3	0.0		
Tumor site								
Head	132	9.77	10.0	71.5	25.7	0.0	7.534	0.184
Body	52	9.11	7.0	57.3	16.8	0.0		
Tail	19	7.00	6.0	45.4	0.0	0.0		
Body and tail	33	8.96	8.0	60.0	16.4	0.0		
Uncinate	2	1.0	_	100.0	100.0	100.0		
Not reporter	2	7.0	7.0	100.0	0.0	0.0		
Line of ttt								
Palliative	122	8.52	8.0	69.7	12.9	0.0	228.921*	
Surgery	35	26.39	36.0	100.0	83.3	0.0		
Neoadjuvant	38	13.38	12.0	95.7	33.1	16.6		< 0.001*
Hormonal ttt	4	6.50	7.0	75.0	0.0	0.0		
Supportive	41	3.43	3.0	0.0	0.0	0.0		

Table 1. Relationship between OS ar	d different parameters	n pancreas group
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	Total No	Diagon (magnitude)	(months) Decise (months) C. Deceth		Log r	ank	
	Total No.	iviean (months)	iviedian (months)	6 Wonth%	χ ²	р	
Size of mass							
Tx	14	3.79	4.0	14.3	3.044	0.218	
T1/2	32	4.91	4.0	12.5			
T3/4	128	4.02	4.0	13.3			
No. of LNS							
Nx	6	4.00	4.0	16.7	0.245	0.884	
NO	49	4.37	4.0	14.3			
N1/N2	119	4.09	4.0	12.6			
Distant Mets							
Mx	1	4.00	4.00	0.0	5.769	0.056	
MO	49	4.92	4.00	26.5			
M1	124	3.87	4.00	8.1			
Grade							
Grade I	2	6.0	6.0	0.0	1.128	0.770	
Grade II	97	4.10	4.0	12.4			
Grade III	69	4.25	4.0	15.9			
Unknown	6	3.67	3.0	0.0			
Initial CA19.9							
Low(<37U/ml)	25	5.04	4.0	28.0	6.688*	0.035*	
High(≥37U/ml)	123	3.86	4.0	6.5			
Not reported	26	4.77	3.0	30.8			
Tumor site							
Head	87	4.18	4.0	10.3	16.866*	0.005*	
Body	39	4.36	4.0	20.5			
Tail	14	3.14	3.0	0.0			
Body and tail	30	4.60	4.0	20.0			
Uncinate	2	1.0	1.0	0.0			
Not reported	2	3.50	1.0	0.0			
Line of ttt							
Palliative	122	3.84	4.0	8.2	7.009	0.072	
Surgery	10	4.50	4.0	0.0			
Neoadjuvant	38	5.13	4.0	34.2			
Hormonal ttt	4	4.0	3.0	0.0			
Chemotherapy							
No	12	3.42	3.0	0.0	1.465	0.226	
Yes	162	4.22	4.0	14.2			

Table 2. Relationships between PFS and different parameters in pancreas group

Six month and one-year DFS in patients who had initial low CA19.9 level (<37U/ml) was better than those who had high level(\geq 37U/ml), 88.9%,33.3% and 68.4%,10.5%, respectively and the difference was statistically significant (P=0.040) (Table 3).

Biliary tract cancer group

The distribution of 35 BTC patients in Egypt's governorates by administrative area. Most cases 21 (60%) were from Gharbia. The estimated median OS of BTC patients which was 12 months, also 6 month and one year OS was reported in 79.7% and 48.9 % of these patients respectively. The estimated median PFS for BTC patients which was 3 month and about 12% of

these patients had 6-month PFS. The estimated median DFS of BTC patients which was 5 months, and 25%% of these patients had 6 months DFS (Figure 3).

The main parameters (size of mass, nodal status, presence of distant metastasis and grade) that affect the OS in BTC group which were statistically significant with difference P values (0.045,0.050 ,0.016and 0.020 respectively). The six month and one-year OS were better in patients who were T1/2 than those who wereT3/4 and it was 100%,100% and 58.3% ,29.2% respectively and the difference was statistically significant (P=0.045).

Also, better in patients who did not have nodal infiltration (N0) than those who were N1/2 and it was 87.5%,65.6% and 76.4%,38.2% respectively and the difference was statistically significant (P=0.050). Presence of distant metastasis (M1) was statistically significant worse in 6 month and 1-year OS than those who





did not have any metastasis (M0) with significant P value 0.016. One-year OS inpatients who had tumor grade 2 was better than those who had tumor grade 3 72.6% and 20% respectively while six-month OS was higher in patients who had tumor grade 3 and the difference was statistically significant (P=0.020) (Table 4).

The main parameters (size of mass, nodal status, presence of metastasis, initial CA19.9 level and primary tumor site) that affect PFS of BTC group which were statistically significant with different P values (0.032, 0.006, 0.043, 0.024, and 0.049, respectively). The six-month PFS was better in patients who were T1/2 than those who wereT3/4 and it was 33.3% and zero% respectively and the difference was statistically significant (P=0.032). Also, better in patients who did not have nodal infiltration (N0) than those who were N1/2 and it was 50% and zero% respectively and the difference was statistically significant (P=0.006).

Presence of distant metastasis (M1) was statistically significant worse in six-month PFS than those who did not have any metastasis (M0) with significant P value 0.043. Six-month PFS in patients who had initial low CA19.9 level was better than those who had high level, 3 72.6% and 20% respectively and the difference was statistically significant (P=0.024). The sixmonth PFS was the best in ampulla of vater tumors with significant p value 0.049 (Table 5).

Patients who had No was better in DFS than those had nodal infiltration (N1) but was statistically non-significant (p=0.433) Also low initial CA19.9 level (<37U/ml) was better DFS than high level (\geq 37U/ml) but also not significant (p=0.083) (Table 6).

DISCUSSION

Our study showed that between 2015 and 2020, PC was the tenth most common form of cancer overall, falling to position ten in 2016.

	Total	Mean	Median	6	1	End	Log	rank
	No.	(months)	(months)	Month%	Year%	Study%	χ^2	р
No. of LNS								
N0	14	10.93	9.0	85.7	21.4	0.0	5.932*	0.015*
N1	21	6.67	7.0	52.4	9.5	0.0		
Initial CA19.9								
Low(<37U/ml)	9	11.56	8.0	88.9	33.3	0.0	6.462*	0.040^{*}
High(≥37U/ml)	19	7.63	7.0	68.4	10.5	0.0		
Not reported	7	6.29	6.0	85.7	0.0	0.0		

Table 3. Relationships between DFS and different parameters in pancreas group

	Total No.	Maan (months)	Madian (manth)	6 Month 9/	Log	rank	
	Total No.	Mean (montus)	Median (month)	0 MOILII 70	χ^2	р	
Size of mass							
Tx	12	3.92	3.0	8.3	6.896	0.032*	
T1/2	6	7.33	3.0	33.3			
T3/4	7	2.14	2.0	0.0			
No. of LNS							
N0	6	8.67	6.0	50.0	7.660*	0.006*	
N1/N2	19	2.84	3.0	0.0			
Distant Mets							
M0	3	10.67	11.0	66.7	4.101*	0.043*	
M1	22	3.36	3.0	4.5			
Grade							
Grade II	14	4.71	3.0	21.4	0.045	0.832	
Grade III	11	3.64	3.0	0.0			
Initial CA19.9							
Low(<37U/ml)	14	5.64	3.0	21.4	5.108*	0.024*	
High(≥37U/ml)	11	2.45	1.0	0.0			
Tumor site							
Gall bladder	9	2.33	3.0	0.0	7.860*	0.049*	
Intra hepatic biliary duct	1	3.0	3.0	0.0			
Extra hepatic biliary duct	14	4.50	3.0	14.3			
Ampulla of vater	1	19.0	19.0	100.0			

 Table 4. Relationships between PFS and different parameters in biliary group

Table 5. Relationship between PFS and different parameters in biliary group

	Total No.	Maan (months) Modian (month)	Madian (manth)	6 Month 9/	Log rank	
	Total No.	Mean (months)	Median (month)	o Month %	χ^2	р
Size of mass						
Tx	12	3.92	3.0	8.3	6.896	0.032*
T1/2	6	7.33	3.0	33.3		
T3/4	7	2.14	2.0	0.0		
No. of LNS						
N0	6	8.67	6.0	50.0	7.660*	0.006*
N1/N2	19	2.84	3.0	0.0		
Distant Mets						
M0	3	10.67	11.0	66.7	4.101*	0.043*
M1	22	3.36	3.0	4.5		
Grade						
Grade II	14	4.71	3.0	21.4	0.045	0.832
Grade III	11	3.64	3.0	0.0	-	
Initial CA19.9						
Low(<37U/ml)	14	5.64	3.0	21.4	5.108*	0.024*
High(≥37U/ml)	11	2.45	1.0	0.0		
Tumor site						
Gall bladder	9	2.33	3.0	0.0	7.860*	0.049*
Intra hepatic biliary duct	1	3.0	3.0	0.0		
Extra hepatic biliary duct	14	4.50	3.0	14.3		
Ampulla of vater	1	19.0	19.0	100.0		

	Total No.	Mean (months)	Median (months)	dian (months) 6 month%		Log rank	
					χ ²	р	
No. of LNS							
NO	2	6.50	5.0	50.0	0.615	0.433	
N1	2	5.0	4.0	0.0			
Initial CA19.9							
Low(<37U/ml)	3	6.33	6.0	33.3	3.000	0.083	
High(≥37U/ml)	1	4.0	4.0	0.0			

Table 6. Relationships between DFS and different parameters in biliary group

In 2016, the number of new cases of PC was 264; of them, 57.2% were male and 42.8% were females (1:1.34). However, in Alghamdi et al. (Alghamdi IG., et al., 2021), PC during 2015 and from 2017-2020 was found to be the tenth most often diagnosed form of cancer overall, while in 2016, it ranked seventh, with a total of 264 cases, 57.2% of which were diagnosed in men and 42.8% in females. By breaking down the number of people with PC into different age categories, we found that the mean age of cases is 61.16 with SD 10.33 years, while the median age of the whole cohort was 62 years (IQR 55-68). Nonetheless, in a different populationbased cohort study, Dongen et al. (van Dongen JC. et al., 2022) case series based on patients diagnosed with PC in the Netherlands Cancer Registry from January 1, 2015 to December 31, 2018. All all, the group had a median age of 72 (interquartile range [IQR]: 64-79). It's possible that the longer lifespan in the Netherlands results from superior medical treatment or natural conditions.

Patients with various baseline CA19.9 levels, tumour grades, and original tumour locations did not have statistically different survival rates (P>0.05), but tumour size, nodal status, presence of distant metastases, and line of therapy were the key criteria affecting OS (P 0.001). T1/2 patients had a much higher sixmonth and one-year OS rate than T3/4 patients did (61% vs. 51%), and this difference was statistically significant (P 0.001). Additionally, statistically significant (P0.001) improvement was seen between individuals with and without nodal involvement (N0): 68.7 vs. 25.7 vs. 18.9 percent. OS at 6 months and 1 year was significantly lower in patients with M1 distant metastasis compared to those without any metastasis (M0; P 0.001). Curative surgical resection significantly improved 6-month and 1year OS compared to nonresectable disease (P0.001). While in the previously mentioned study Li et al (Li Q et al., 2022), Univariate analysis showed Comparison of survival of patients with different CA199 levels. Patients with lymph node metastasis had a significantly shorter survival time (P0.05), patients with liver metastasis had a significantly shorter survival time (P0.05), patients with higher CA19.9 levels had a significantly shorter survival time (P0.05), and patients with T3 disease had a significantly shorter survival time (P0.05). Even though there was no statistically significant difference in survival rate (P>0.05) based on initial tumor location.

We found that 13.2 percent of patients with PC in our trial had 6-month PFS, with the median PFS being 4 months. Estimated median progression-free survival (PFS) for 76 patients diagnosed pancreatic with exocrine adenocarcinoma and treated at the Clinical **Oncology Department of Menoufia University** between January 2007 and December 2011 was 12 weeks (3 months) (Gohar S. et al., 2017). We found that the principal determinants affecting progression-free survival were the baseline CA19.9 level and the primary tumor location (P=0.035 and 0.005, respectively). Patients with an initially low CA19.9 level showed a statistically significant (P=0.035) higher sixmonth progression-free survival rate than those with an initially high CA19.9 level. Tumors in the pancreatic body showed the highest progression-free survival at 6 months (p =0.005). Progression-free survival is also impacted by several factors such treatment route, tumor size, and metastatic presence, although these differences are not statistically significant.

While in another research, high TNM stage was shown to be a predictor of poor PFS based on

univariate analysis (p=0.014; hazard ratio (HR)=2.096, 95% CI: CI=1.164-3.774) (650). However, our investigation found no clear connection between baseline CA19.9 levels and PC location at any of the investigated locations. Time to progression was substantially linked with disease stage, number of metastatic sites, and treatment method in our analysis of 5625 patients treated at the Clinical Oncology Department of Menoufia University between January 2007 and December 2011. TTP was shorter for patients who were more advanced in stage, had more than two metastatic locations, and were not surgical candidates. Treatment modality-specific progression time. CA19.9 does have some effect on TTP, it's not very big (Gohar S. et al., 2017). Perhaps this distinction is attributable to the small sample size of individuals diagnosed with PC in our investigation.

Only 35 patients in our research had radical surgery with the hope of a cure, but we were able to determine an estimated mean DFS of 8.37 months for PC patients. Of these patients, 65.7% had a DFS of 6 months or longer, and the median DFS was 7 months. While in Tian et al. (Tian X. et al., 2019) Patients who had PDAC surgery at Peking University First Hospital between January 2010 and December 2017, retrospectively, were enrolled. Patients with pathologically proven PDAC (185 patients) were included in this research, and the median disease-free survival (DFS) was 15 months (95 percent confidence interval [CI] 13.6-16.5. This discrepancy may be attributable to the small sample size of resected patients in our research; we will also examine other prognostic variables.

Decision-making, recurrence risk prediction, adjuvant therapy regimen, and surveillance planning all benefit greatly from a thorough understanding of the prognostic factors for long-term survival in patients with PDAC after surgery, as well as a robust staging system with a significant prognostic impact. Our research identified the two most important factors (nodal status and starting CA19.9 level) that significantly affect the disease-free survival (P=0.015 and 0.040, respectively). Patients in the PC group who underwent curative surgical resection and did not have nodal infiltration (N0) fared better in terms of 6-month and 1year DFS than those who were N1, with 85.7 and 21.4 percent and 52.4 and 9.5 percent, respectively; this difference was statistically significant (P=0.015). Patients with an initial CA19.9 level (37 U/mL) exhibited a statistically significant (P=0.040) higher 6-month and 1-year DFS compared to those with an initial high level (37 U/mL), at 88.9 percent and 33.3%, respectively.

While in Tian et al. (Tian X. et al., 2019), Cox regression model for univariate analysis comprised 14 potential DFS-related covariates, including AJCC N staging and CA 19-9 400 U/mL, both of which were linked with DFS (P.05). DFS was significantly lower for patients with nodal involvement (N1 and N2) compared to those with no nodal infiltration (N0), and for those with a CA19.9 level (400 U/mL) compared to those with a lower or normal level. We observed that between 2015 and 2019, BTC accounted for just 0.3% to 0.7% of all malignancies, and that there were no cases recorded in 2020. There was a total of 35 instances of BTC, with 26 (74.3%) involving men and 9 (25.7%) involving females. Patients with BTCs accounted for 2.2% of all cancer diagnoses in the Tunisian Cancer Center between 2012 and 2019 (Abdallah et al.), and the male-tofemale ratio was 1.14 (Ben Abdallah I. et al., 2020).

The median OS for patients with BTC was predicted to be 12 months, while median progression-free survival was projected to be 3 months. In a study by McNamara et al. (McNamara MG. et al., 2020), 1,333 BTC patients were included from January 1997 to December 2015, it was reported that the median OS time was 10.2 months, and the median progression-free survival time was 5.9 months. The primary characteristics (mass size, nodal status, distant metastasis, and grade) shown to have statistically significant effects on OS in the BTC group were found to have different P values (0.045, 0.050, 0.016 and 0.020 respectively). Different P values were found for the key characteristics (tumour size, nodal status, metastasis, starting CA19.9 level, and original tumour location) that impact progression-free survival in the BTC group (0.032,0.006,0.043,0.024 and 0.049, respectively). Prognosis free survival (PFS) was significantly worse for GB tumours, T3/4 was significantly worse than T1/2, and nodal infiltration or the existence of distant metastases was also significantly worse than in patients who were N0 and M0.

Comparing 940 patients diagnosed with a BTC between 2001 and 2017 at 14 Italian medical oncology institutions, another retrospective study found that GB cancers had a significantly worse progression-free survival (PFS) compared to ECC (p = 0.004) and AV (p = 0.003), and that distant spread (initially metastatic disease or recurrence with distant metastases, 76.5 percent) was significantly associated with worse survival (Filippi R. et al., 2022). We discovered that 4 (11.4%) patients underwent surgery with the goal of curing them, that the projected median DFS of BTC patients was 5 months, and that 25% of these patients had a DFS of 6 months or more. In contrast, a retrospective analysis by Rizzo et al. (Rizzo A. et al., 2022) found that between January 2000 and November 2020, the median DFS for R0 and R1 BTC patients who had surgery with the intention of curing the disease was 16.4 and 12.3 months, respectively. (663). The bigger sample size and longer follow-up time of this research explain why its findings vary so much from our own.

There are several gaps in our research. Since this was a retrospective, single-center study, we recognise the possibility of selection bias. Patients who came to our hospital for a second opinion are included in our research, so the results may not be representative of those who received all their care here. In addition, we omitted vital parameters including race, BMI, BRCA status, and the margin, lymph node dissection, and lympho-vascular invasion of areas that had radical resection. Despite these caveats, we provide vital demographic, clinical, and survival data for this cohort. We suggest that efforts are needed to establish national multi-center databases to better comprehend and define the PC epidemiology in Egypt. Such studies would be the basis for getting the required statistics recorded by government bodies.

CONCLUSION

Case registration and follow-up at Tanta University Hospitals are streamlined because to collaboration between the hospital's cancer unit, diagnostic imaging division, and surgery division. Survival rates and treatment outcomes for various cancers can only be determined by meticulous case-by-case tracking. We advocate for the use of genetic counselling after testing to educate families about specific genetic disorders, the risks and advantages of testing, disease management, and potential treatment choices. It is important to promote communityspecific cancer prevention initiatives, especially those aimed at reducing cigarette use and treating hepatitis C.

FUNDING

There were no financial support or sponsorship.

CONFLICT OF INTEREST

The authors did not have any conflict of interest.

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