Journal of Surgery
2022; 10(1): 34-39
http://www.sciencepublishinggroup.com/j/js
doi: 10.11648/j.js.20221001.17
ISSN: 2330-0914 (Print); ISSN: 2330-0930 (Online)

Palliative Surgery in Pancreatic Head Cancer at the University Hospital of Bouaké

Mamadou Traore*, Bernadette Ahou N'Dri, Ibrahim Kouakou Anzoua, Bernadin Kouame Kouakou, Ismael Kalou Leh Bi, Amos Serge Ekra, Amos Blaise Kouakou, Alassane Binate, Venance Alloka, Inza Bamba, Ezechiel Akowendo, Roger Lebeau, Bamourou Diane

Department of General and Digestive Surgery, University Hospital of Bouake, Bouake, Ivory Coast

Email address:
traorefallstam2000@yahoo.fr (M. Traore)

*Corresponding author

To cite this article:
Mamadou Traore, Bernadette Ahou N'Dri, Ibrahim Kouakou Anzoua, Bernadin Kouame Kouakou, Ismael Kalou Leh Bi, Amos Serge Ekra, Amos Blaise Kouakou, Alassane Binate, Venance Alloka, Inza Bamba, Ezechiel Akowendo, Roger Lebeau, Bamourou Diane. Palliative Surgery in Pancreatic Head Cancer at the University Hospital of Bouaké. *Journal of Surgery*. Vol. 10, No. 1, 2022, pp. 34-39.
doi: 10.11648/j.js.20221001.17

Received: January 9, 2022; **Accepted**: February 4, 2022; **Published**: February 16, 2022

Abstract: *Introduction*: Cancer of the head of the pancreas is increasing in incidence. It represents 3% of all cancers and 20% of digestive cancers. Diagnosis is most often late. Indeed, 80% of these cancers are discovered at an advanced stage. In this case, the treatment is essentially palliative. The reference treatment is chemotherapy associated with endoscopic treatment if there is obstruction of the bile duct. Palliative surgery is only indicated in the case of intraoperative discovery of a contraindication to a curative surgical procedure. However, this palliative surgery is still in the forefront in low-income countries with limited technical facilities. The aim of this work was to determine the frequency and modalities of palliative surgery in unresectable pancreatic head cancer and to evaluate the results. *Methods*: Retrospective and descriptive study of the files of patients who underwent palliative surgery for a malignant tumour of the head of the pancreas; operated at the University Hospital of Bouake from January 2011 to December 2020. *Results*: Palliative surgery was performed in 71 patients, or 80.6% of patients with locally advanced pancreatic head tumour. We performed a double biliary and digestive bypass systematically. The digestive bypass was a gastrojejunal anastomosis in all cases. For the biliary-digestive diversion, different modalities were performed, notably a choledocho-jejunal anastomosis in 53.6% (n=38), a cholecysto-jejunal anastomosis in 38.0% (n=27) and a choledochodenal anastomosis in 8.4% (n=6). The overall morbidity was 22.5% (n=16). Morbidity related to the surgical procedure was 18.3% (n=13). These were biliary leakage (n=6; 8.4%) and parietal bleeding (n=4; 5.6%). Three patients died immediately postoperatively, giving an operative mortality of 4.2%. The mean survival of the patients was 5.8±2.2 months. *Conclusion*: Palliative surgery occupies a privileged place in our practice, allowing an improvement in the quality of life of the patients without apparent influence on the long-term prognosis which remains appalling. The hope of improving the prognosis lies in early diagnosis and strengthening the technical platform.

Keywords: Biliary Bypass, Palliative Surgery, Pancreatic Cancer

1. Introduction

Pancreatic head cancer has a growing incidence; worldwide standardised incidence of 319 per 100,000 population, i.e. 3% of all cancers and 20% of digestive cancers [1-5]. It ranks 5th among digestive cancers worldwide [5].

In Côte d'Ivoire, its incidence was 2.3% in 2018, ranking 8th among all cancers and the 4th digestive cancer after liver, stomach and colon. It is the 8th leading cause of cancer death in Côte d'Ivoire [6].

The diagnosis of pancreatic head cancer remains late [1, 7]. Indeed, 80% of these cancers are discovered at an advanced stage [3, 8]. It remains the digestive cancer with the poorest prognosis, with an overall survival rate at 5 years of around 1

to 3% and an average survival of 4 to 8 months [3].

At the time of diagnosis, curative surgery, especially cephalic duodenopancreatectomy, is usually no longer possible because the tumour is already at an advanced stage. In this case, the standard treatment is chemotherapy [9]. If there is associated choledochal and/or duodenal obstruction, endoscopic treatment is prioritised [9]. Palliative bypass surgery is only indicated if a contraindication to curative surgery is discovered during surgery [9].

In our low-income countries, with limited technical facilities, what place does palliative surgery occupy in the management of pancreatic head cancers?

We undertook a retrospective study to determine the place of palliative surgery in the treatment of malignant pancreatic head tumours in our practice and to evaluate the results.

2. Patients and Methods

2.1. Patients

The study included the records of 71 patients who underwent palliative surgery for malignant pancreatic head tumour.

These included 54 men (76.1%) and 17 women (23.1%). The mean age was 56.9±13.7 years (extremes: 24 and 81 years). A comorbidity was noted in 19 patients (33.6%). These were hypertension (n=9), diabetes (n=6), gastric or duodenal ulcer (n=6), and bronchopneumonia (n=1). The mean time to consultation was 102.4±76.4 days (extremes: 45 days and 365 days). Patients were classified as WHO 1 (n=26), WHO 2 (n=38) and WHO 3 (n=7).

2.2. Methods

This was a 10-year retrospective and descriptive study from January 1, 2011 to December 31, 2020, which took place in the general and digestive surgery department of the University Hospital of Bouaké (Côte D'Ivoire).

It concerned patients operated on for a malignant tumour of the head of the pancreas in whom palliative surgery was performed.

The malignant character was evoked by:

1. Clinical data: permanent jaundice, alteration of the general state, large palpable gallbladder (n=71), Sister Marie-Joseph's umbilical nodule (n=9), Troisier's ganglion (n=7).
2. Scannographic findings: cephalic mass with bichannel dilatation, choledochus and Wirsung (n=67).
3. Elevation of CA19-9 tumour markers greater than 39 IU/L; performed in 12 patients with a mean value of 114.6 IU/L [extremes 94 and 212 IU/L].
4. The aggressiveness of the tumour intraoperatively: locoregional, lymph node, peritoneal and liver extension (n=25).
5. Histology performed in 17 patients. It was an adenocarcinoma in 16 cases and an insulinoma in 1 case.

The clinical and paraclinical evaluation of extension allowed the tumours to be classified as stage II (n=2; 2.8%), stage III (n=42; 59.1%) and stage IV (n=27; 38.1%).

The haemostasis work-up noted a prothrombin level below 70% in all cases. An injection of 10 mg of vitamin K1 for 3 days normalised the prothrombin level in all cases.

All patients had a complete preoperative workup. Fluid and electrolyte balance and nutrition with total proteins were performed. Blood transfusion was performed when the haemoglobin level was below 9g/dl.

The variables studied were intraoperative findings, surgical methods, mortality, morbidity, length of hospital stay and survival.

3. Results

3.1. Incidence

During the study period, we recorded 91 cases of pancreatic head cancer (PTC), i.e. approximately 9.2% of all digestive malignancies. Of these 91 PTCs, 3 (3.3%) were still localised and for which a PCD was performed. Eighty-eight (96.7%) were at an advanced stage. Palliative surgery was performed in 71 of the 88 patients with advanced cancer (80.6%).

3.2. Ntraoperative Data

Intraoperatively, the tumour was locally advanced (T4) in 97.2% (n=69). In two cases (2.8%), the tumour was still localised to the pancreas but there was lymph node extension, ascites and nodules of peritoneal carcinosis.

The various intraoperative findings are shown in Table 1.

Table 1. *Intraoperative findings.*

Intraoperative findings	Numbers	Percentages
Locally advanced tumour (T4)	69	97,2
Localized tumor (T3)	02	2,8
Node extension (N2)	68	95,8
Peritoneal carcinosis (M1) (Ascites and/or peritoneal granulations)	17	23,9
Liver nodules (M1)	09	12,7

3.3. Therapeutic Aspects

The approach was a median supra umbilical laparotomy (n=67) or a bisous-costal laparotomy (n=4).

We systematically performed a double biliary-digestive and gastro-jejunal diversion. The gastro-jejunal anastomosis was performed pre-colic and isoperistaltic. For the biliary-digestive diversion, different modalities were performed as presented in table 2. Drainage was systematically performed with the placement of Delbet drains opposite the anastomoses, in the right subphrenic.

Table 2. *Different types of biliary-digestive diversion performed.*

Bilio-digestive diversion	Numbers	Percentages
Cholédocojejunal	38	53,6
Cholécystojejunal	27	38,0
Cholédocoduodenal	06	8,4
Total	71	100

3.4. Evolutionary Aspects

The average hospital stay was 11.7±4.4 days (extremes: 8 and 21 days).

The immediate postoperative course was favourable in 55 patients with:

1. regression of clinical cholestasis as early as D3 postoperatively.
2. disappearance of pruritus within an average of 6 days (extremes: 2 and 9 days).

Complications occurred postoperatively in 16 patients, representing an overall morbidity of 22.5% [Table 3]. Morbidity related to the surgical procedure was 18.3% (n=13). These were biliary leakage (n=6; 8.4%) and parietal haemorrhage (n=4; 5.6%). The bile leaks occurred in patients who had undergone choledocho-jejunal anastomosis (n=5) or choledochodenal anastomosis (n=1). All bile leaks dried up with medical treatment consisting of diet, antibiotic therapy, and parenteral nutrition. The average time to dry up the bile leaks was 7 days [extremes: 3 and 9 days]. Parietal suppurations dried up with local care with chlorine solutions.

Parietal haemorrhages required administration of Vitamin K1, haemostatics and pressure dressings.

Medical complications were treated with antihypertensive drugs for hypertensive flare, insulin for hyperglycaemia and antibiotic therapy for pneumopathy.

Table 3. *Different postoperative complications.*

Complications		Effectifs	Pourcentages
Surgical	Biliary leakage	6	8,4
	Parietal haemorrhage	4	5,6
	Parietal suppuration	3	4,2
Médicales	Hypertensive surge	1	1,4
	Glycemic imbalance	1	1,4
	Pneumonia	1	1,4

Three patients died immediately postoperatively, giving an operative mortality of 4.2%. Table 4 reports the causes and characteristics of the patients who died.

Table 4. *Characteristics of deceased patients.*

Parameters	Patient 1	Patient 2	Patient 3
Gender	F	M	M
Age (years)	61	76	39
Histology	Insulinoma	Adenocarcinoma	Indeterminate
Extension	Locally advanced	Peritoneal carcinosis Lung metastasis	Carcinosis Hepatic metastasis
ASA grade	II	III	II
Bilio-digestive diversion	choledocojejunale	choledocojejunale	cholecystojejunale
Cause of death	Hepatic encephalopathy	Pulmonary emboli	Terminal cachexia
Time to death (days)	2	5	28

3.5. Survival

Sixty-eight patients were discharged alive.

On discharge, patients were referred to the cancer ward.

Thirteen patients were lost to follow-up after discharge (18.3% of patients).

Survival at 3 months, 6 months and 12 months was 63.2% (n=43), 38.2% (n=26) and 2.9% (n=4) respectively. The mean survival of patients was 5.8±2.2 months with a median survival of 5 months [Figure 1].

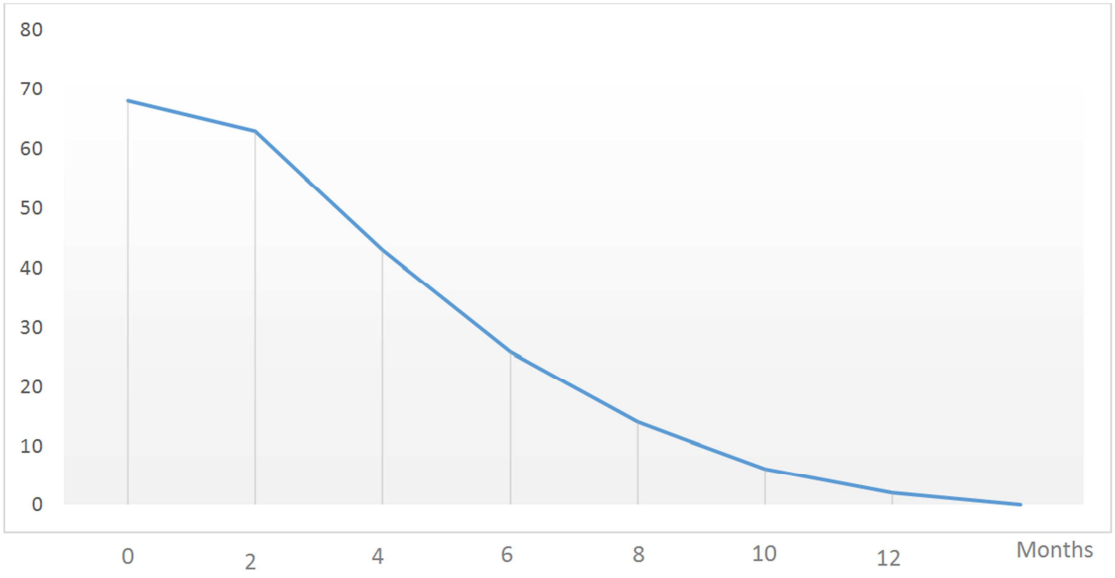

Figure 1. *Kaplan Meier survival curve.*

4. Discussion

4.1. Limitations of Our Study

During the course of our study, we were confronted with certain difficulties in the collection of data; this constituted limitations for our study.

1. The determination of tumour markers, in particular the CA19-9 antigen, was not performed in all patients.
2. The histological nature of the tumours was not specified in some patients.
3. We noted that 18.3% of patients were lost to follow-up after discharge (n=13).

4.2. Frequency

More than 80% of patients with pancreatic head cancer are eligible for palliative treatment [10]. This rate of patients eligible for palliative treatment was 96.7% in our series. This rate was comparable to those found by Y Imorou Souaibou [11] in Benin, Sacko O [12] in Mali and Tchangai B [13] in Togo which were respectively 68.9%, 73% and 92%.

4.3. Surgical Methods

According to the latest recommendations on the management of these locally advanced cancers, chemotherapy is the reference treatment with well defined protocols [9]. However, in the case of bile duct obstruction, cholestasis compromises the tolerance and efficacy of chemotherapy and increases the risk of complications [3]. This compression and/or invasion of the bile duct occurs in 80% of cases [14]. Removal of the biliary obstruction must be rapid, effective and free of excessive morbidity in these patients whose general condition is precarious.

Endoscopic placement of biliary stents or prostheses [9, 15] and more recently percutaneous ultrasound guided drainage are the methods of choice for biliary drainage. Surgical biliary bypass is only indicated if a contraindication to curative surgery is found intraoperatively [9]. In low-income countries with limited technical resources, palliative bypass surgery is the method of choice. In our series, its frequency was estimated at 80.6%. This rate could be revised upwards as it is under-reported. In fact, the indication for surgical bypass which had been given to some patients could not be carried out due to the refusal of the surgical intervention by the families. In African series, this frequency of palliative surgery varied from 68.9% to 100% [7, 8, 11-15]. The choice of surgical method for biliary diversion varies from one author to another. We performed choledocho-jejunal anastomosis in 53.5% and cholecysto-jejunal in 38%. These two techniques were also chosen by Sacko O [12] in Mali in 40% and 33% of cases. Other authors such as Imorou [11] in Benin and Lesurtel [16] opted for choledochodenal anastomoses in 83.8% and 83%. Table 5 shows the different techniques used by various authors. Cholecysto-jejunal diversion was performed in more than 38% of cases in our series without any complications. This method seems to us to be simpler and quicker to perform with less risk of biliary fistula in case of inflammation or infiltration of the hepatic pedicle.

In all cases, we have preferred the jejunum to the duodenum for biliary-digestive shunts because there is risk of duodenal stenosis is 13-30% in patients who have received a choledochodenal shunt [8, 17]. In our study, biliary shunts to the jejunum were performed most frequently.

Table 5. *Techniques for biliary and digestive diversion according to different authors.*

Techniques	Our série	Sacko [12] Mali 2012	Imorou [11] Benin 2018	Lesurtel [16] 2004	Tchangai [13] Togo 2017
Choledoco-jejunale	53,5%	40	9,7%	-	-
Cholecysto-jejunale	38%	33%	6,7%	-	10,8%
Choledoco-duodenale	8,4%	27%	83,8%	83%	8,1%
Hepatico-jejunale	-	-	-	17%	81,1%
Cholecysto-duodenale	-	-	-	-	2,2

Gastroentero-anastomosis (GEA) was systematically associated with biliary-digestive diversion in our series, even though some authors do not believe that prophylactic gastrojejunostomy is justified to avoid the consequences of duodenal stenosis [9]. This GEA would not be an excessive procedure because there is a 20% risk of duodenal invasion [14].

4.4. Evolutionary Data

The surgical morbidity was 18.3%, dominated by biliary leakage (8.4%; n=6). Five of the six bile leaks occurred on the choledocho-jejunal anastomosis. This could be due to the fragility of the bile duct wall which is often very dilated.

Survival at 6 and 12 months was 38.2% and 2.9%. The prognosis of pancreatic head cancers is poor, with a 5-year survival rate of only 5% [18].

Chemotherapy with new protocols being tested would improve this survival [9]. On discharge from hospital, patients were referred to the oncology department but none of them received chemotherapy due to the distance from the oncology department and the high cost of treatment.

We propose our treatment approach for locally advanced pancreatic head cancer [figure 2].

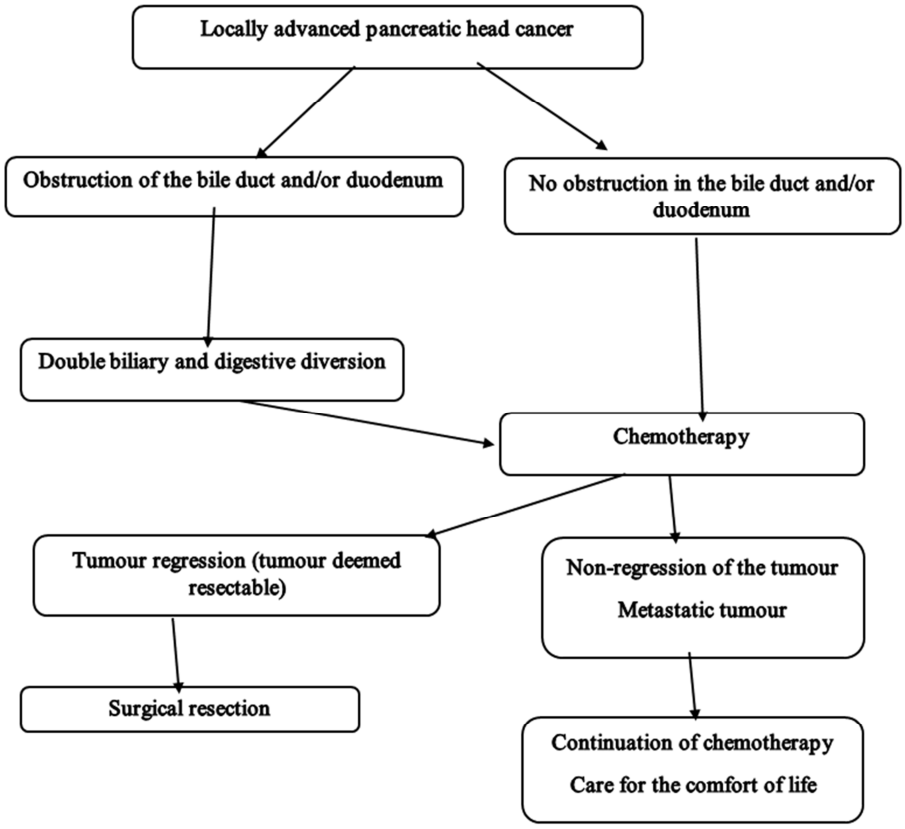

Figure 2. *Decision tree for our management of locally advanced pancreatic head cancer.*

5. Conclusion

Pancreatic head cancer remains a cancer with a poor prognosis because of its late diagnosis, where curative surgery is no longer possible. Despite the development of new therapeutic techniques (endoprosthesis, echo-guided biliary drainage), palliative surgery with biliary and digestive bypasses has a privileged place in our practice. It improves the quality of life of patients. The hope of improving the prognosis lies on the one hand in early diagnosis and on the other hand in the reinforcement of the technical platform and the reduction of the cost of chemotherapy.

Conflict of Interest

All the authors do not have any possible conflicts of interest.

References

[1] Braud F, Cascinu S, Gatta G. Cancer of pancreas. *Crit Rev Oncol Hematol 2004; 50 (2): 147-55.*

[2] Ferlay J, Partensky C, Bray F. More deaths from pancreatic cancer than breast cancer in the EU by 2017. *Acta Oncol 2016; 55 (9-10): 1158-60.*

[3] Deflandre LA, Loly JP, Leclercq P, Loly C, Louis E, Gast P. Adénocarcinome obstructif localement avancé de la tête du pancréas: importance du drainage biliaire précoce. [Locally advanced obstructive adenocarcinoma of the pancreatic head: importance of early biliary drainage] *Rev Med Suisse 2018; 14: 1443-7.*

[4] Cronin FDP, Erichsen R, Mortensen D, Norgaard J. Pancreatic cancer survival in central and northern Denamark from 1998 through 2009: a Population based cohort study. *Clinical epidemiology 2011; 3 (suppl): 19-25.*

[5] Kamangar F, Dores GM, Anderson WF. Patterns of cancer incidence, mortality, and prevalence across five continents: Defining priorities to reduce cancer disparities in different geographic regions of the world. *J Clin Oncol 2006; 24 (14): 2137-50.*

[6] Bray F, Ferlay J, Serjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin. 2018; 68 (6): 394-424.*

[7] Sidibé BY, Dembélé BT, Bah A, Maiga A, Coulibaly A, Traoré A et Al. Dérivations bilio-digestives dans la chirurgie palliative du cancer de la tête du pancréas au CHU Gabriel Touré. [Bilio-digestive diversions in palliative surgery for pancreatic head cancer at Gabriel Touré University Hospital.] *Mali médical 2018; 33 (3): 29-32.*

[8] Berrada S, D'khissy M, Ridai M, Zerouali NO. Place de la dérivation bilio-digestive dans le traitement du cancer de la tête du pancréas. [Place of biliary-digestive bypass in the treatment of pancreatic head cancer] *Médecine du Maghreb 1993 n°37.*

[9] Neuzillet C, Gaujoux S, Williet N, Bachet JB, Bauguion L, Colson DL, et Al. Thésaurus National de Cancérologie Digestive (TNCD); *Dig Liver Dis. 2018; 50 (12): 1257-71.*

[10] Maire F, Sauvanet A. Dérivations biliaires et digestives pour tumeur pancréatique non résécable: endoscopie ou chirurgie? [Biliary and digestive diversions for unresectable pancreatic tumour: endoscopy or surgery?]. *J Chir Visc 2013; 150: 28-32.*

[11] Souaibou YI, Gnangnon FHR, Seto DM, Lawani I, Attolou GR, N'Tcha NHN et Al. Chirurgie palliative de présumes cancers de la tête du pancréas: notre expérience au CNHU-HKM de Cotonou (Benin). [Palliative surgery of presumed pancreatic head cancers: our experience at the CNHU-HKM of Cotonou (Benin)]. *J Afr Chir Digest 2018; 18 (1): 2354-8.*

[12] Sacko O, Sanogo ZZ, Camara A, Koumaré S, Koïta A, Keïta S et Al. Dérivations bilio-digestives dans la chirurgie palliative du cancer de la tête du pancréas: à propos de 45 cas. [Bilio-digestive diversions in palliative surgery for pancreatic head cancer: a review of 45 cases.]. *Rev. Afr. Chir. Spéc. 2012; 003: 35-40.*

[13] Tchangai B, Tchaou M, Darre T, Alassani F, Dosseh ED, Attipou K. Indications et résultats de la chirurgie palliative des cancers de la tête du pancréas au CHU Sylvanus Olympio. [Indications and results of palliative surgery for pancreatic head cancers at Sylvanus Olympio University Hospital]. *RECAC. 2017; 2 (13): 41-4.*

[14] Maire F, Hammel P, Ponsot P. Long-term outcome of biliary and duodenal stents in palliative treatment of patients with unresectable adenocarcinoma of the head of pancreas. *Am J Gastroenterol 2006; 101: 735-42.*

[15] Ducreux M, Cuhna AS, Caramella C, Hollebecque A, Burtin P, Goere D. Committee EG. Cancer of the pancreas: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol 2015; 26 (5): 56-68.*

[16] Lesurtel M, Paye F, Parc R. Résultats du traitement palliatif chirurgical des cancers de la tête du pancréas par double dérivation bilio-digestive et gastro-jéjunale. [Results of palliative surgical treatment of pancreatic head cancers by double biliary-digestive and gastro-jejunal bypass]. *Gastroenterol Clin Biol. 2004; 28: 240-8.*

[17] Lillemoe KD, Yeo CJ, Cameron JL. Pancreatic cancers: state-of- the- art Care. *CA Cancer J Clin. 2000; 50: 241-68.*

[18] Ferlay J. Le cancer du pancréas dans le monde. [Pancreatic cancer worldwide] *E-Mem Acad Nat Med. 2014; 13 (4): 12-6.*