

高雄榮民總醫院

胰臟癌診療指引

2022年03月22日 第一版

胰臟癌醫療團隊擬訂

注意事項：這個診療原則主要作為醫師和其他保健專家診療癌症病人參考之用。假如你是一個癌症病人，直接引用這個診療原則並不恰當，只有你的醫師才能決定給你最恰當的治療。

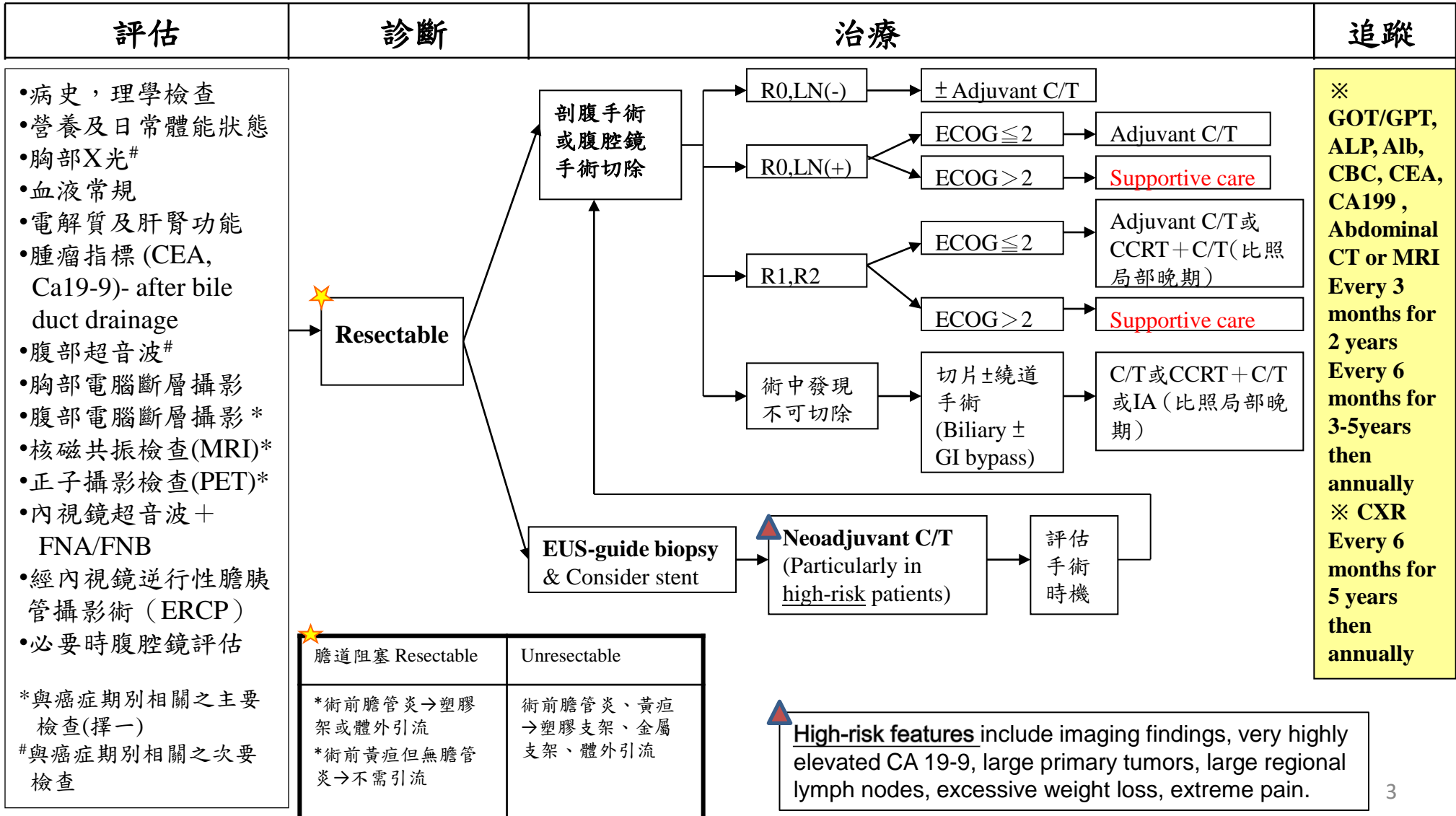
會議討論

上次會議：2021/04/20(第一版)

本共識與上一版的差異

上一版	新版
<ul style="list-style-type: none">1-1. 新增胸部電腦斷層攝影。(P.3~P.5)1-2. 腫瘤指標CA 19-9建議”after bile duct drainage”後抽，以建立baseline資料。(P.3~P.5)1-3. 內視鏡超音波+FNA，新增FNB。(P.3~P.5)2. 「Resectable」治療:EUS-guide biopsy新增“& Consider stent”。(P.3)3.刪除”針對轉移性病灶切片”敘述；條列式分類切片方式，新增”2.staging laparoscopy”、EUS-FNA新增”FNB”。(P.4)4.建議Biopsy positive / Neoadjuvant 前要DRAINAGE。(P.4)5.刪除”PTCD or PTGBD”敘述。(P.3~P.5)6.新增”mFOLFIRINOX”regimen。(P.9)7.修改動脈內化學放射治療處方。(P.14)	<ul style="list-style-type: none">1.Resectable:術後ECOG>2分「支持性治療」改「Supportive care」。(P.3)2-1. Metastatic disease: 「支持性治療」改「Palliative care」。(P.5)2-2.Metastatic disease: ECOG>2分新增「Hospice」(P.5)3.新增轉移癌的維持藥物: Olaparib(Lynpraza)(P.12)

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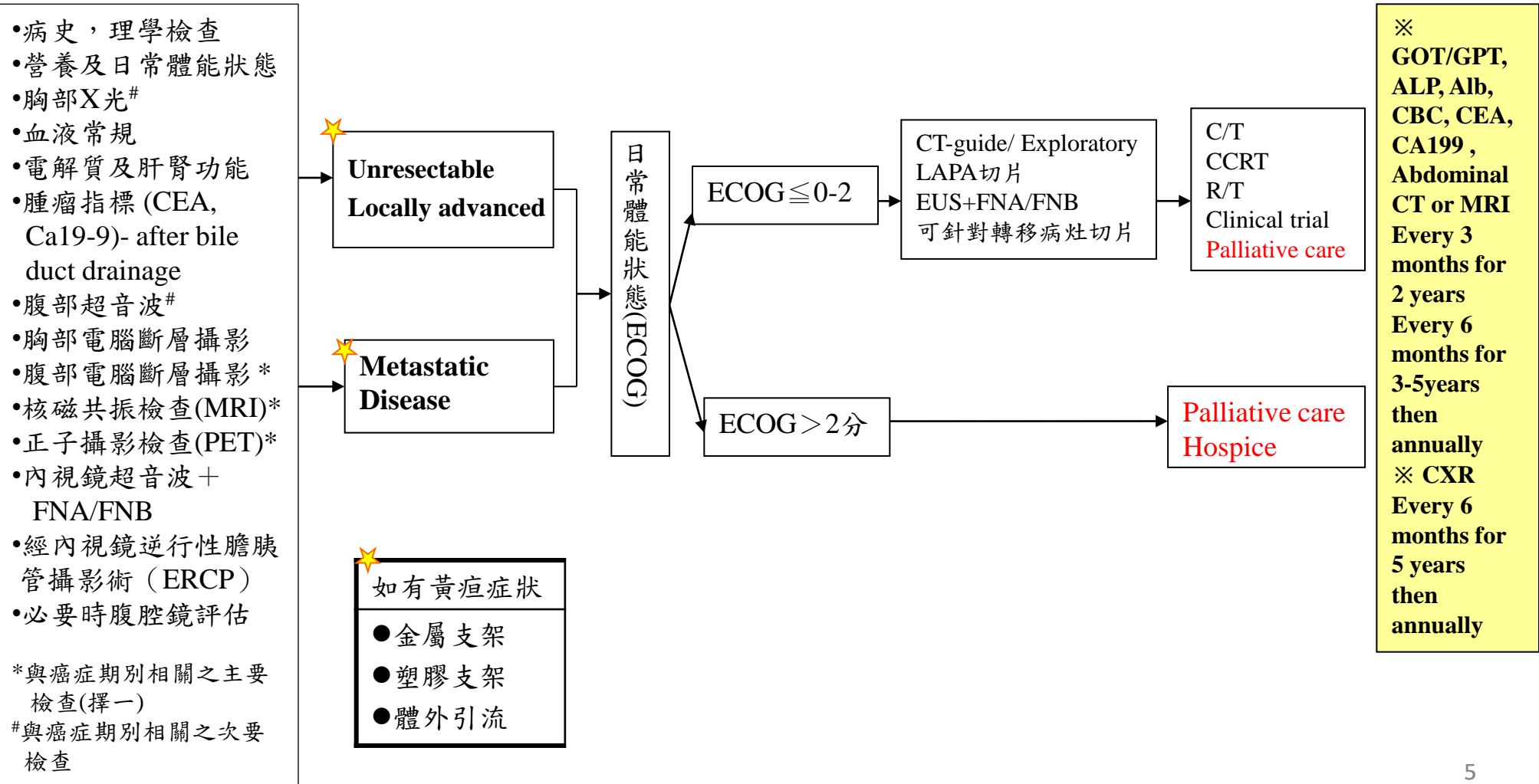
評估	診斷	治療	追蹤
<ul style="list-style-type: none"> • 病史，理學檢查 • 營養及日常體能狀態 • 胸部X光[#] • 血液常規 • 電解質及肝腎功能 • 腫瘤指標 (CEA, Ca19-9)- after bile duct drainage • 腹部超音波[#] • 胸部電腦斷層攝影 • 腹部電腦斷層攝影* • 核磁共振檢查(MRI)* • 正子攝影檢查(PET)* • 內視鏡超音波 + FNA/FNB • 經內視鏡逆行性膽胰管攝影術 (ERCP) • 必要時腹腔鏡評估 <p>*與癌症期別相關之主要檢查(擇一) #與癌症期別相關之次要檢查</p>	<p>Borderline Resectable</p> <p>1. CT-guide 2. staging laparoscopy 3. exploratory LAPA切片 4. EUS+FNA/FNB</p> <p>Cancer not confirmed → Repeat biopsy → Biopsy Positive</p> <p>Biopsy Positive → Neoadjuvant therapy → 評估手術可能性</p> <p>評估手術可能性 → Surgical resection / Unresectable at surgery / Disease progression</p> <p>Neoadjuvant 前要 DRAINAGE • 如有黃疸症狀: 金屬支架、塑膠支架、體外引流</p>	<p>See Resectable Treatment</p> <p>See Unresectable/ Locally advanced Treatment</p> <p>See Locally advanced/ Metastatic Disease Treatment</p>	<p>※ GOT/GPT, ALP, Alb, CBC, CEA, CA199, Every 6 months Abdominal CT or MRI Every 3 months for 2 years for 3-5 years then annually ※ CXR Every 6 months for 5 years then annually</p>

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評估	診斷	治療	追蹤
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Criteria defining resectability status at diagnosis

Reference (No): 1

*可手術切除 (MD-CT or MRI) :

- ① 無遠處轉移
- ② 上腸繫膜靜脈(SMV)或肝門靜脈(PV)完好
- ③ 腹腔動脈幹(celiac trunk)、肝動脈(HA)、上腸繫膜動脈(SMA)完好

* **Borderline**可切除 :

- ① 無遠處轉移
- ② 上腸繫膜靜脈(SMV)或肝門靜脈(PV)可能被侵犯，但可手術切除部份血管並清除腫瘤
- ③ 胃十二指腸動脈(GDA)或肝動脈(HA)被侵犯，但可手術切除部份血管並清除腫瘤
- ④ 上腸繫膜動脈(SMA)完好，但未超過180°

* 不可切除 :

胰臟頭部腫瘤

- ① 有遠處轉移
- ② 上腸繫膜動脈(SMA)被侵犯>180°，或celiac trunk被侵犯
- ③ 上腸繫膜靜脈(SMV)或肝門靜脈(PV)不可切除(無法重建血管) ④ 主動脈或下腔靜脈被侵犯

胰臟體部腫瘤

- ① 有遠處轉移
- ② 上腸繫膜動脈(SMA)被侵犯>180°
- ③ 上腸繫膜靜脈(SMV)或肝門靜脈(PV)不可切除(無法重建血管) ④ 主動脈被侵犯

胰臟尾部腫瘤

- ① 有遠處轉移 ② 上腸繫膜動脈(SMA)被侵犯>180° ③ 淋巴結轉移至切除範圍外

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化學治療處方建議表：輔助化療

Adjuvant chemotherapy (R0切除) (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
TS-1 80-120mg/day (po 4 weeks on, 2 weeks off/ or po 2 weeks on, 1 weeks off) BSA $\geq 1.5\text{m}^2$: 120mg /day, 1.25m^2 - 1.5m^2 : 100mg/day, < 1.25m^2 : 80mg/day	Q42 d /cycle x 4	NO.04/Level IB
Gemcitabine 1000 mg/m ² , IV,D1,D8,D15	Q28 d /cycle x 6	NO.05/Level IB NO.06 /Level IB
5-FU/LV Leucovorin 20mg/m ² , IV bolus, and then 5-FU 425mg/m ² , IV bolus, total 5 days	Q28 d/cycle x 6	NO.07/Level IB

健保用藥9.4.1：Gemcitabine限用於晚期或無法手術切除之非小細胞肺癌及胰臟癌病患。

健保用藥9.46：TS-1治療局部晚期無法手術切除或轉移性胰臟癌病人。

a. 若淋巴結陽性，符合「晚期」。可以開立健保給付之Gemcitabine與TS-1。

b. 若淋巴結陰性，不符合「晚期」。Gemcitabine與TS-1需用自費開立；或使用5-FU/LV則無給付之疑慮，但證據強度較Gemcitabine低。

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化學治療處方建議表:輔助化療

Adjuvant chemotherapy (R0切除) (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
mFOLFIRINOX Oxaliplatin 85 mg/m ² ,IV,2hrs Leukovorin 400 mg/m ² ,IV,2hrs Irinotecan 150 mg/m ² ,IV,90mins 5-FU 2400 mg/m ² ,IV,46hrs	Q2W /cycle x 12	NO.26/Level I

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化學治療處方建議表：新輔助化療

Chemotherapy for Neo-adjuvant (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
FOLFIRINOX Oxaliplatin 85 mg/m ² ,IV,2hrs Leukovorin 400 mg/m ² ,IV,2hrs Irinotecan 180 mg/m ² ,IV,90mins 5-FU 400 mg/m ² ,IV bolus 5-FU 2400 mg/m ² ,IV,46hrs	Q2W	NO.08/Level V
Cisplatin 50 mg/m ² , IV,D1, D15 Gemcitabine 1000 mg/m ² , IV,D1,D15	Q28 d	NO.17/Level V、 NO.22/Level V
mFOLFIRINOX Oxaliplatin 85 mg/m ² ,IV,2hrs Leukovorin 400 mg/m ² ,IV,2hrs Irinotecan 150 mg/m ² ,IV,90mins 5-FU 2400 mg/m ² ,IV,46hrs	Q2W	NO.01/Level I

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化學治療處方建議表:局部晚期、轉移癌化療-1

Chemotherapy for unresectable 、metastasis (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
FOLFIRINOX Oxaliplatin 85 mg/m ² ,IV,2hrs Leukovorin 400 mg/m ² ,IV,2hrs Irinotecan 180 mg/m ² ,IV,90mins 5-FU 400 mg/m ² ,IV bolus 5-FU 2400 mg/m ² ,IV,46hrs	Q2W	NO.08/Level IB
Gemcitabine 1000 mg/m ² , IV,D1,D8,D15	Q28 d	NO.09/Level IA
Gemcitabine 1000 mg/m ² , IV,D1,D8 TS-1 60-100mg/day BSA $\geq 1.5\text{m}^2$: 100mg /day, 1.25m ² - 1.5m ² : 80mg/day, <1.25m ² : 60mg/day,PO,D1-14	Q21 d	NO.10 /Level IB NO.15 /Level III
TS-1 80-120mg/day (po 4 weeks on, 2 weeks off/ or po 2 weeks on, 1 weeks off) BSA $\geq 1.5\text{m}^2$: 120mg /day, 1.25m ² - 1.5m ² : 100mg/day, <1.25m ² : 80mg/day	Q42 d /cycle	NO.10 /Level IB

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化學治療處方建議表:局部晚期、轉移癌化療-2

Chemotherapy for unresectable、metastasis (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
SLOG Gemcitabine 800 mg/m ² , IV, D1 Oxaliplatin 85 mg/m ² ,IV,2hrs, D1 TS-1 35mg/m ² /daily, BIDPC (Max daily dose 120mg), D1-D7 Calcium Folate Folic acid(15mg/tab) 20mg/m ² /daily, BID, D1-D7	Q2W/cycle	NO.20 /Level V
FIRINOX Oxaliplatin 85 mg/m ² ,IV,2hrs Irinotecan 150 mg/m ² ,IV,90mins 5-FU 2400 mg/m ² ,IV,46hrs	Q2W/ cycle x 4	NO.24/Level V
nab-paclitaxel (Abraxane)* 125 mg/m ² , IV, D1, D8, D15 Gemcitabine 1000 mg/m ² , IV, D1, D8, D15	Q4W/cycle	NO.21 /Level I

*健保用藥9.5.2：Albumin-based paclitaxel (如Abraxane):(108/11/01)限併用gemcitabine，作為轉移性胰臟癌患者之第一線治療。

化學治療處方建議表:轉移癌化療-3

Chemotherapy for metastasis (maintenance therapy)	Schedule	Reference (No)/ strength of Evidence
Olaparib(Lynparza) 300-600mg/day, PO, BID	QD Until progression	NO.27/Level IB

Olaparib(Lynparza)單一療法之維持治療，可用於遺傳性BRCA突變且經第一線含鉑化療至少16週後疾病未惡化之轉移性胰臟腺癌成年病人。

化學治療二線處方建議表-1

Chemotherapy for unresectable/recurrent disease (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
Liposomal irinotecan and fluorouracil Onivyde *60-80 mg/m ² ,IV, keep 90mins Leucovorin 400 mg/m ² ,IV, over 30mins 5-FU 2400 mg/m ² , IV, for 46hrs	Q2W/cycle Until progression	NO.16/Level IB
FOLFIRI Irinotecan 180 mg/m ² ,IV, D1 Leucovorin 400 mg/m ² ,IV, 2hrs 5-FU 400 mg/m ² , IV bolus 5-FU 2400 mg/m ² ,IV,46hrs	Q2W/cycle Until progression	NO.23/Level I

*健保用藥9.12.2：Irinotecan微脂體注射劑(如Onivyde):(107/8/1)

- 1.與5-FU及leucovorin合併使用於曾接受過gemcitabine治療後復發或惡化之轉移性胰臟腺癌。
- 2.需經事前審查核准後使用。

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化學治療二線處方建議表-2

Chemotherapy for unresectable/recurrent disease (ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
FIRINOX Oxaliplatin 85 mg/m ² ,IV,2hrs Irinotecan 150 mg/m ² ,IV,90mins	Q2W/cycle Until progression	NO.25/Level V
SOXIRI Oxaliplatin 85 mg/m ² ,IV,2hrs Irinotecan 150 mg/m ² ,IV,90mins TS-1 80mg/m ² , BID	Q2W/cycle Until progression	NO.25/Level V

動脈內化學放射治療處方建議表

Indications:

1. Post-operative liver metastasis from pancreatic cancer

1. Intra-arterial Chemoradiotherapy for post-operative liver metastasis(術後肝轉移， ECOG grade ≤ 2)	Schedule	Reference (No)/ strength of Evidence
IA Chemotherapy 5-FU D1~D5 and IA Gemcitabine, D1~D5 Gemcitabine 400mg/m ² /d, IA, over 30mins 5-FU 250mg/m ² /d, IA, over 24hrs from day1 to 5	Q 2~ 4 W	NO.13/Level IIB NO.18/Level IV

放射治療處方建議表

Indication :

Reference (No)/ strength of Evidence N0.14/Level

- (1)Adjuvant CCRT for R1 resection and R2 resection
- (2)For medically fit patients but unresectable cancer without distant metastasis
- (3)For medically unfit patients without distant metastasis
- (4)Following CCRT, additional maintenance chemotherapy is suggested

CCRT:

(1)Radiation therapy:

Target volume: tumor bed, adjacent LN and surgical anastomosis (for post OP adjuvant CCRT)

Dose: 45-54 Gy (1.8-2 Gy/day)

(2)Chemotherapy regimen:

Gemcitabine (600 mg/m²) beginning the first day of RT (before RT), then weekly thereafter during RT

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癌症藥物停藥準則

影像學檢查，腫瘤有變大或轉移變多，應停止或改變治療方式。

AJCC 8th 胰臟癌分期

Reference (No): 1

Table 1. Definitions for T, N, M
American Joint Committee on Cancer (AJCC) TNM Staging of Pancreatic Cancer (8th ed., 2017)

T	Primary Tumor	N	Regional Lymph Nodes
TX	Primary tumor cannot be assessed	NX	Regional lymph nodes cannot be assessed
T0	No evidence of primary tumor	N0	No regional lymph node metastases
Tis	Carcinoma <i>in situ</i> This includes high-grade pancreatic intraepithelial neoplasia (PanIn-3), intraductal papillary mucinous neoplasm with high-grade dysplasia, intraductal tubulopapillary neoplasm with high-grade dysplasia, and mucinous cystic neoplasm with high-grade dysplasia	N1	Metastasis in one to three regional lymph nodes
T1	Tumor ≤2 cm in greatest dimension	N2	Metastasis in four or more regional lymph nodes
T1a	Tumor ≤0.5 cm in greatest dimension	M	Distant Metastasis
T1b	Tumor >0.5 cm and <1 cm in greatest dimension	M0	No distant metastasis
T1c	Tumor 1–2 cm in greatest dimension	M1	Distant metastasis
T2	Tumor >2 cm and ≤4 cm in greatest dimension		
T3	Tumor >4 cm in greatest dimension		
T4	Tumor involves the celiac axis, superior mesenteric artery, and/or common hepatic artery, regardless of size		

Table 2. AJCC Prognostic Groups

	T	N	M
Stage 0	Tis	N0	M0
Stage IA	T1	N0	M0
Stage IB	T2	N0	M0
Stage IIA	T3	N0	M0
Stage IIB	T1, T2, T3	N1	M0
Stage III	T1, T2, T3	N2	M0
	T4	Any N	M0
Stage IV	Any T	Any N	M1

Reference-1

1. **NCCN guideline Version 1.2022 – Pancreatic Adenocarcinoma**
2. NHRI/TCOG Cancer Practice Guideline – Pancreatic Cancer
3. Seufferlein T, Bachet JB, Van Cutsem E, Rougier P; ESMO Guidelines Working Group: Pancreatic adenocarcinoma: ESMO-ESDO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol.* 2012 Oct;23 Suppl 7:vii33-40.
4. Akira Fukutomi et al. JASPAC 01 trial (ASCO 2013)
5. Helmut Oettle et al. Adjuvant Chemotherapy With Gemcitabine vs Observation in Patients Undergoing Curative-Intent Resection of Pancreatic Cancer. (*JAMA.* 2007; 297:267-277).
6. H Ueno et al. A randomised phase III trial comparing gemcitabine with surgery-only in patients with resected pancreatic cancer: Japanese Study Group of Adjuvant Therapy for Pancreatic Cancer. (*British Journal of Cancer* 2009, 101, 908 – 915) .
7. John P. Neoptolemos et al. Adjuvant Chemotherapy With Fluorouracil Plus Folinic Acid vs Gemcitabine Following Pancreatic Cancer Resection (*JAMA.* 2010: 1073-1081).
8. Thierry Conroy et al. FOLFIRINOX versus Gemcitabine for Metastatic Pancreatic Cancer. (*N Engl J Med* 2011;364:1817-25).
9. H A Burris 3rd et al. Improvements in survival and clinical benefit with gemcitabine as first-line therapy for patients with advanced pancreas cancer: a randomized trial. (*J Clin Oncol.* 1997 Jun;15(6):2403-13)
10. Hideki Ueno et al. Randomized Phase III Study of Gemcitabine Plus S-1, S-1 Alone, or Gemcitabine Alone in Patients With Locally Advanced and Metastatic Pancreatic Cancer in Japan and Taiwan: GEST Study(*J Clin Oncol* 31:1640-1648).
11. Liu F, Tang Y, Sun J, Yuan Z, Li S, Sheng J, Ren H, Hao J. Regional Intra-Arterial vs. systemic Chemotherapy for Advanced Pancreatic Cancer: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *PLoS ONE* 2012;7(7):e40847.
12. Tanaka T, Sakaguchi H, Anai H, Yamamoto K, Morimoto K, Tamamoto T, Kichikawa K. Arterial Infusion of 5-Fluorouracil Combined with Concurrent Radiotherapy for Unresectable Pancreatic Cancer: Results from a Pilot Study. *AJR* 2007; 189:421–428.
13. Tanaka T, Sho M, Nishiofuku H, Sakaguchi H, Inaba Y, Nakajima Y, Kichikawa K. Unresectable Pancreatic Cancer: Arterial Embolization to Achieve a Single Blood Supply for Intraarterial Infusion of 5-Fluorouracil and Full-Dose IV Gemcitabine. *AJR* 2012; 198:1445–1452.
14. Gemcitabine Alone Versus Gemcitabine Plus Radiotherapy in Patients With Locally Advanced Pancreatic Cancer: AN Eastern Cooperative Oncology Group Trial. *J Clin Oncol* 2011 Nov 1;29(31):4105-12.

Reference-2

15. Ueno H, Ioka T, Ikeda M, Ohkawa S, Yanagimoto H, Boku N. et al. Randomized phase III study of gemcitabine plus S-1, S-1 alone, or gemcitabine alone in patients with locally advanced and metastatic pancreatic cancer in Japan and Taiwan: GEST study. *J Clin Oncol* 2013 May 1;31(13):1640-8.
16. Andrea Wang-Gillam et al. Nanoliposomal irinotecan with fluorouracil and folinic acid in metastatic pancreatic cancer after previous gemcitabine-based therapy (NAPOLI-1): a global, randomised, open-label, phase 3 trial. *Lancet* 2016; 387: 545–57.
17. Volker Heinemann et al. Randomized Phase III Trial of Gemcitabine Plus Cisplatin Compared With Gemcitabine Alone in Advanced Pancreatic Cancer. *J Clin Oncol* 24:3946-3952; 2006.
18. Hidehiro Tajima et al. Hepatic arterial infusion chemotherapy with gemcitabine and 5-fluorouracil or oral S-1 improves the prognosis of patients with postoperative liver metastases from pancreatic cancer. *MOLECULAR AND CLINICAL ONCOLOGY* 1: 869-874, 2013.
19. Hidehiro Tajima et al. Hepatic arterial infusion chemotherapy for post-operative liver metastases from pancreatic cancer in a patient with leukocytopenia: A case report. *Experimental and Therapeutic Medicine* 1: 987-990, 2010.
20. N-J Chiang, K. K. Tsai, J-S Chen, S-H Yang, H-H Hsiao, Y-S Shan and L-T Chen. Multicenter, phase II trial of biweekly S-1, leucovorin (LV), oxaliplatin and gemcitabine (SLOG) in metastatic pancreatic adenocarcinoma (mPDAC): Final report of TCOG T1211 study. *Annals of Oncology*, Volume 29, Issue suppl_8, 1 October 2018.
21. Daniel D. Von Hoff et al. Increased Survival in Pancreatic Cancer with nab-Paclitaxel plus Gemcitabine. *N ENGL J MED*; 369; 18: 1691-1703, 2013.
22. Ouyang et al. Gemcitabine Plus Cisplatin Versus gemcitabine alone in the treatment of pancreatic cancer: a meta-analysis. *World Journal of Surgical Oncology*, 14:59, 2016.
23. Cindy Neuzillet et al., FOLFIRI regimen in metastatic pancreatic adenocarcinoma resistant to gemcitabine and platinum-salts. *WJG*; 2012 September 7 ; 18(33): 4533-4541.
24. Ken-ichi Okada et al., Impact of treatment duration of neoadjuvant FIRINOX in patients with borderline resectable pancreatic cancer: a pilot trial. *Cancer Chemother Pharmacol*(2016) 78:719-726.
25. Takahiro Akahori et al., Phase II study of the triple combination chemotherapy of SOXIRI (S-1/Oxaliplatin/Irinotecan) in patients with unresectable pancreatic ductal adenocarcinoma. *The Oncologist* 2019 ; 24: 749-e224.
26. T. Conroy et al. FOLFIRINOX or Gemcitabine as Adjuvant Therapy for Pancreatic Cancer. *The NEW ENGLAND JOURNAL of MEDICINE*; 2018 December: 379(25), 2395-2406.
27. Maintenance Olaparib for Germline BRCA-Mutated Metastatic Pancreatic Cancer . *The NEW ENGLAND JOURNAL of MEDICINE*; 2019 July: 381(4), 317-327.