~~Three~~ Things to Know About ~~GI~~ Cancers

Liver & Pancreas

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Disclosures

I have **NO** financial disclosures or conflicts of interest with the material presented in this presentation.

Overview

1. **Cancer 101 → Pancreas & Liver**
    - Epidemiology
    - Risk factors & presentation
    - Workup & management

2. **Primary care role in caring for the cancer patient**
    - Screening → Diagnosis/detection
    - During and after treatment

The Core Principle of Surgical Oncology

"Biology is King; selection of cases is Queen, and the technical details of surgical procedures are princes and princesses of the realm who frequently try to overthrow the powerful forces of the King and Queen, ***usually to no long-term avail…***"

Blake Cady, MD
Presidential Address to the Society of Surgical Oncology, 1988

Pancreatic Cancer: **Epidemiology**

- 4th leading cause of cancer-related deaths in the US:
  - Behind lung, breast/prostate, & colorectal
  - **Projected #2 by 2030**

- 2022 US Projections:
  - ~ 62,210 new cases
  - ~ 49,830 deaths
  - ~3% of all cancers in the US and ~7% of all cancer deaths

Estimated New Cases

Males			Females		
Prostate	268,490	27%	Breast	287,850	31%
Lung & bronchus	117,910	12%	Lung & bronchus	118,830	13%
Colon & rectum	80,690	8%	Colon & rectum	70,340	8%
Urinary bladder	61,700	6%	Uterine corpus	65,950	7%
Melanoma of the skin	57,180	6%	Melanoma of the skin	42,600	5%
Kidney & renal pelvis	50,290	5%	Non-Hodgkin lymphoma	36,350	4%
Non-Hodgkin lymphoma	44,120	4%	Thyroid	31,940	3%
Oral cavity & pharynx	38,700	4%	Pancreas	29,240	3%
Leukemia	35,810	4%	Kidney & renal pelvis	28,710	3%
Pancreas	32,970	3%	Leukemia	24,840	3%
All Sites	**983,160**	**100%**	**All Sites**	**934,870**	**100%**

Estimated Deaths

Males			Females		
Lung & bronchus	68,820	21%	Lung & bronchus	61,360	21%
Prostate	34,500	11%	Breast	43,250	15%
Colon & rectum	28,400	9%	Colon & rectum	24,180	8%
Pancreas	25,970	8%	Pancreas	23,860	8%
Liver & intrahepatic bile duct	20,420	6%	Ovary	12,810	4%
Leukemia	14,020	4%	Uterine corpus	12,550	4%
Esophagus	13,250	4%	Liver & intrahepatic bile duct	10,100	4%
Urinary bladder	12,120	4%	Leukemia	9,980	3%
Non-Hodgkin lymphoma	11,700	4%	Non-Hodgkin lymphoma	8,550	3%
Brain & other nervous system	10,710	3%	Brain & other nervous system	7,570	3%
All Sites	**322,090**	**100%**	**All Sites**	**287,270**	**100%**

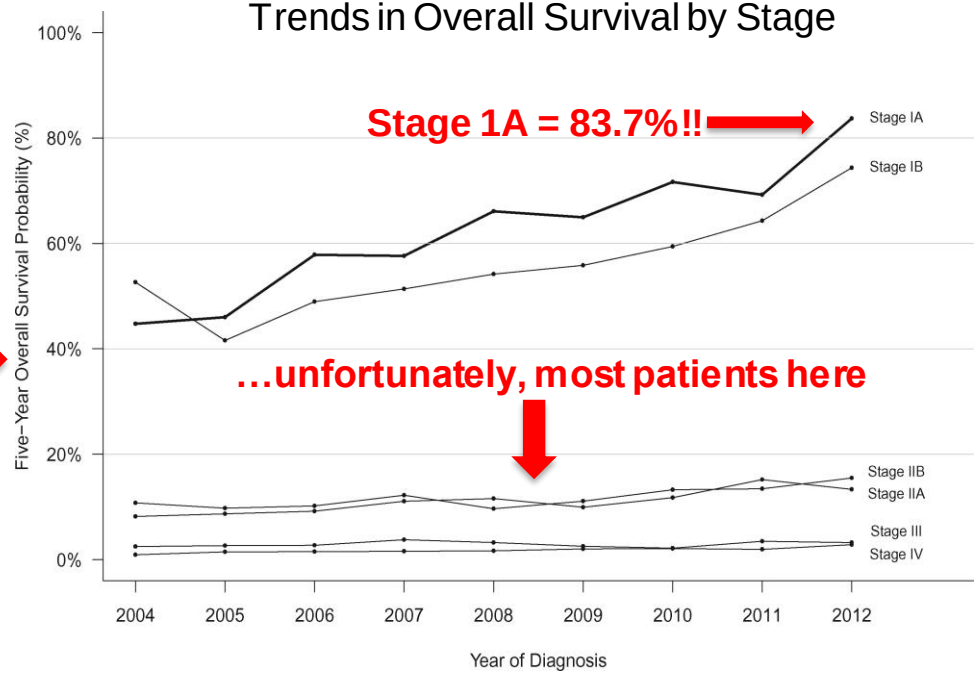
Siegel, RL, Miller, KD, Fuchs, HE, Jemal, A. Cancer statistics, 2022. *CA Cancer J Clin*. 2022. https://doi.org/10.3322/caac.21708

Pancreatic Cancer: **Epidemiology**

- Slightly more common in males (1.3:1)
- Dx 60-80yo
- ~80-85% **unresectable** at Dx

SEER Stage	5-year Relative Survival Rate
Localized	39%
Regional	13%
Distant	3%
All SEER stages combined	10%

*Based on SEER data for Dx between 2010 and 2016



American Cancer Society. *Cancer Facts & Figures 2021.* Atlanta, Ga: American Cancer Society; 2021.
Ruhl JL, Callaghan C, Hurlbut, A, Ries LAG, Adamo P, Dickie L, Schussler N (eds.) Summary Stage 2018: Codes and Coding Instructions, National Cancer Institute, Bethesda, MD, 2018.

Pancreatic Cancer: **Clinical Realities**

- Early detection is serendipity
- Most patients are elderly and deconditioned with comorbidities
- Cure is rare and only seen in resected patients
- Tumors are radio- and chemoresistant
- Survival for most patients is measured in months

Robert A. Wolff, M.D.

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Pancreatic Cancer: **Risk Factors**

- Smoking (RR 1.3-5.6) → ~30% of all PDAC mortality
- Heavy EtOH consumption (>3 drinks/day) → 20% increased risk
- Obesity (RR 2.0) → Higher BMI = younger age at dx
- Diabetes (RR ~2.0)
- Metabolic syndrome (RR 2.0)

Lots of overlap

- Genetic predisposition:
  - Genetic syndromes → BRCA1/2, PJS (STK11), Lynch syndrome, hereditary pancreatitis (PRSS1, SPINK1, CFTR), familial malignant melanoma syndrome (CDKN2A)
  - FHx/Familial pancreatic cancer → 2+ 1° or any 3 family members

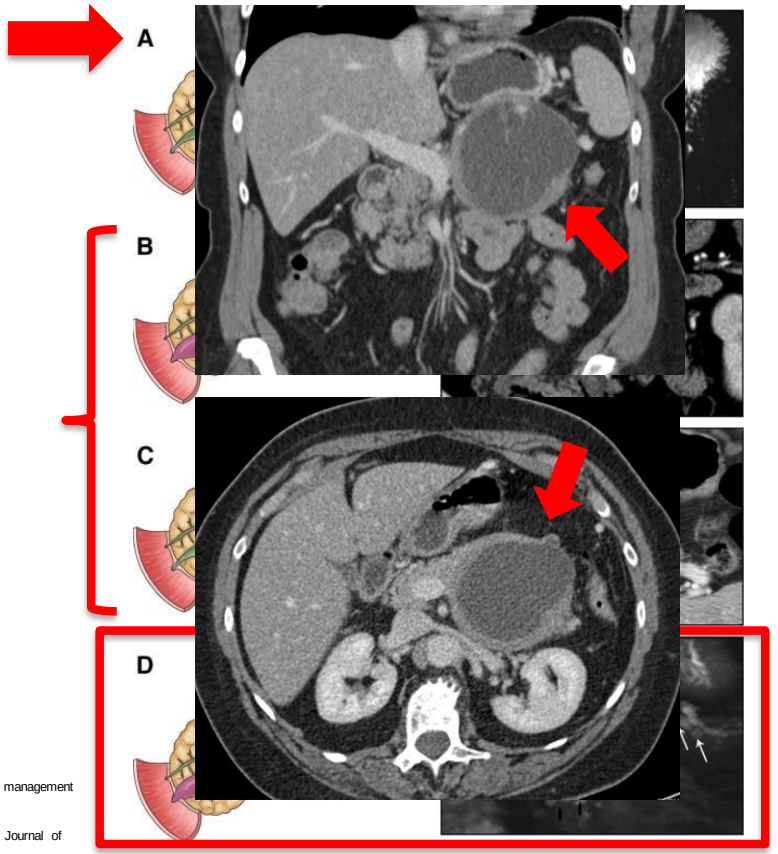
~ 5-6%

Maisonneuve P, Lowenfels AB. Risk factors for pancreatic cancer: a summary review of meta-analytical studies. Int J Epidemiol 2015;**44**:186–98.
Li D, Morris JS, Liu J, et al. Body mass index and risk, age of onset, and survival in patients with pancreatic cancer. *JAMA*. 2009;301(24):2553-2562. doi:10.1001/jama.2009.886

Pancreatic Cancer: **Risk Factors**

- <u>Pancreatic cystic neoplasms</u>
  - Intraductal papillary mucinous neoplasms (IPMN)
    - Main Duct → **High risk:** HGD/CA in ~60% at resection
    - Branch Duct → HGD/CA in ~30% at resection. Est 2-9% lifetime risk
  - Mucinous cystic neoplasms (MCN) → CA in ~10%

- <u>Chronic pancreatitis (RR ~16)</u>
  - Risk depends on cause (EtOH, tropical, hereditary, idiopathic)
  - Lifetime risk for hereditary pancreatitis 7-20%



Tanaka M, Fernández-Del Castillo C, Kamisawa T, Jang JY, Levy P, Ohtsuka T, Salvia R, Shimizu Y, Tada M, Wolfgang CL. Revisions of international consensus Fukuoka guidelines for the management of IPMN of the pancreas. Pancreatology. 2017 Sep-Oct;17(5):738-753. doi: 10.1016/j.pan.2017.07.007. Epub 2017 Jul 13. PMID: 28735806.

Kirkegård, Jakob MD[1,2]; Mortensen, Frank Viborg DMSc[1]; Cronin-Fenton, Deirdre PhD[2] Chronic Pancreatitis and Pancreatic Cancer Risk: A Systematic Review and Meta-analysis, American Journal of Gastroenterology: September 2017 - Volume 112 - Issue 9 - p 1366-1372 doi: 10.1038/ajg.2017.218

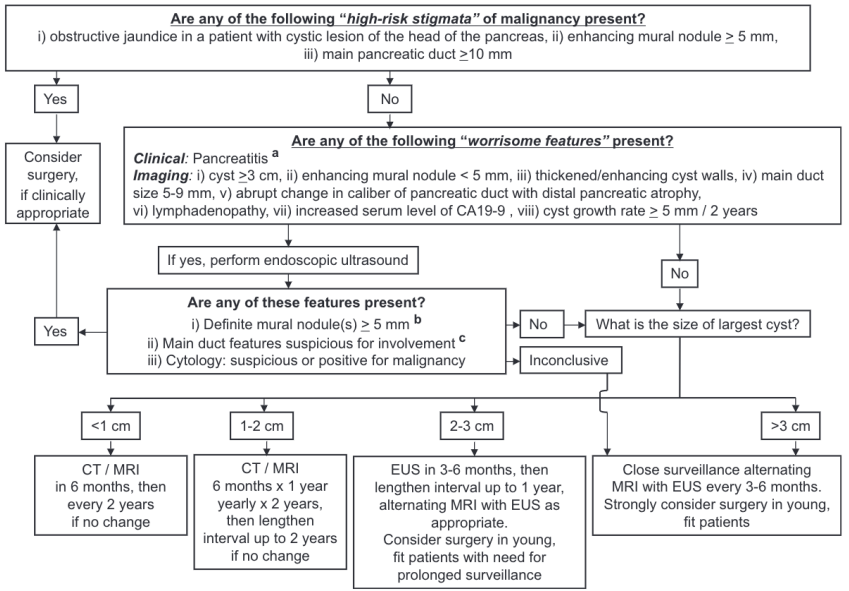
Pancreatic Cancer: **Risk Factors**

A few words about pancreatic cysts…

- Incidental pancreatic cysts are ***extremely common*** (~10-20% of MRIs)
- May be completely benign or precursor lesions (MANY different types!)
- Workup, management, and surveillance → **complex, multidisciplinary, and often LIFELONG**!

Refer to a specialist (pancreas surgeon or gastroenterologist) EARLY!

Fukuoka Guidelines for IPMN



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de Oliveira PB, Puchnick A, Szejnfeld J, Goldman SM. Prevalence of incidental pancreatic cysts on 3 tesla magnetic resonance. *PLoS One*. 2015;10(3):e0121317. Published 2015 Mar 23. doi:10.1371/journal.pone.0121317

Pancreatic Cancer: **Presentation**

- Symptoms often vague → Abdominal discomfort, decreased appetite/energy level, **weight loss**
  - MisDx: GERD/PUD/gastritis → EGD
  - MisDx: Gallbladder Dz → cholecystectomy
    - ~15% of patients initially misdiagnosed as GB dz. 10-15% of PDAC s/p cholecystectomy in prior 2y
  - MisDx: Pancreatitis → Caused by underlying mass, obscured on imaging by inflammation
- "Painless jaundice" → Biliary obstruction due to HOP mass
  - Jaundice, scleral icterus, dark urine, pale stools, itching, **cholangitis**
- Pancreatic insufficiency
  - ~25% of PDAC preceded by new-onset DM (***PDAC only accounts for ~1% of new DM cases >50yo)
    - Older
    - Blood sugars rise more rapidly & more difficult to control
    - Unintended weight **LOSS**
  - Exocrine insufficiency → bloating, steatorrhea

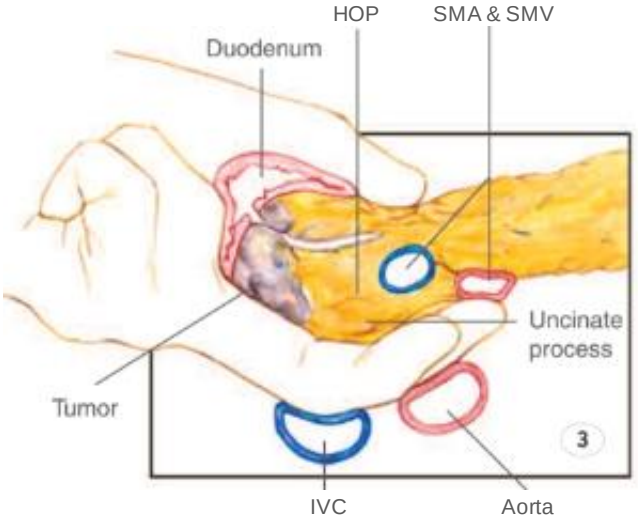
WHO???

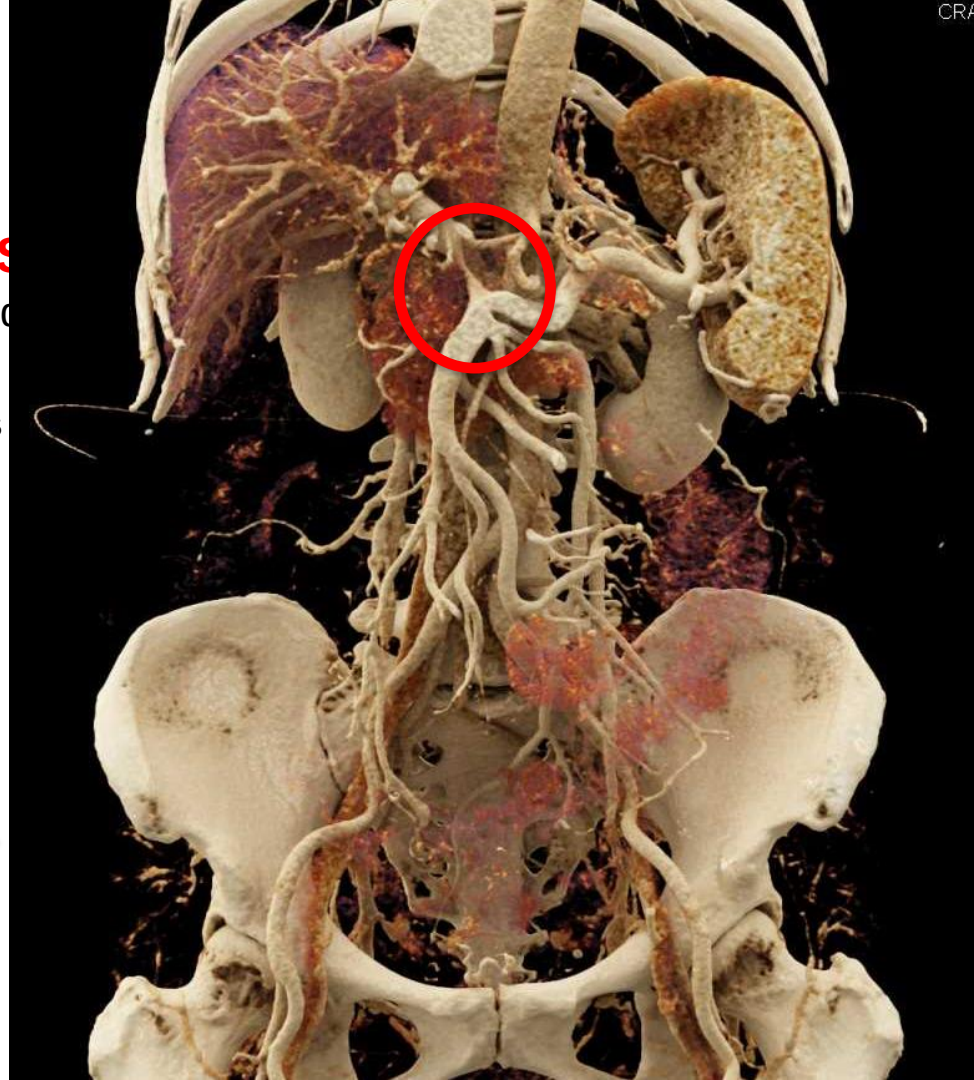
Swords, D.S., Mone, M.C., Zhang, C. *et al.* Initial Misdiagnosis of Proximal Pancreatic Adenocarcinoma Is Associated with Delay in Diagnosis and Advanced Stage at Presentation. *J Gastrointest Surg* **19,** 1813–1821 (2015). https://doi.org/10.1007/s11605-015-2923-z

Pancreatic Cancer: **Workup**

- **<u>Pancreas Protocol CT</u>** **BEFORE S**
  - Dual-phase IV contrast scan of the abd (water)
  - Synoptic radiology report → Tumor vs

…The old days





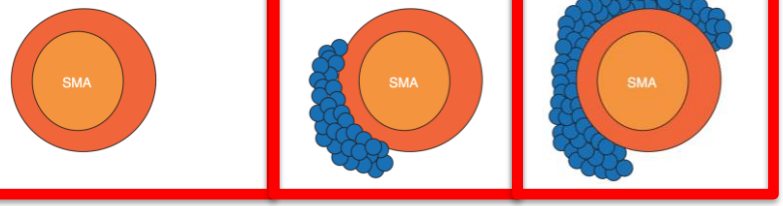
Pancreatic Cancer: **Workup**

"Resectability" – What do we mean???

MANY definitions!

MD Anderson Cancer Center[11,12]

	Potentially resectable	Borderline resectable	Locally advanced
SMV/PV	Abutment or encasement without occlusion	Short segment occlusion	Not reconstructible
SMA	No abutment or encasement	Abutment	Encasement
CHA	No abutment or encasement	Abutment or short segment encasement	Long segment encasement
CT	No abutment or encasement	Abutment	Encasement



None ...Some Too much!

The "Essence" of Resectability:
Can it be taken out completely without harming the patient?

Abutment: ≤180° vessel involvement

Encasement: >180° vessel involvement

<u>Additional Resectability Factors</u>:

A – Anatomy → Vessel involvement on imaging

B – Biology → CA 19-9 level

C – Condition/Comorbidity → Performance status

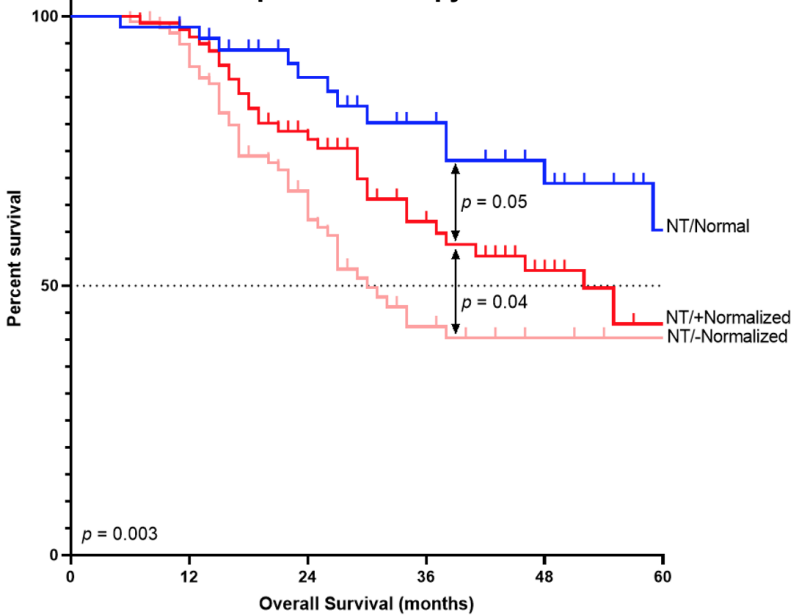
Katz MH, Fleming JB, Bhosale P, Varadhachary G, Lee JE, Wolff R et al. (2012) Response of borderline resectable pancreatic cancer to neoadjuvant therapy is not reflected by radiographic indicators. Cancer 118:5749–5756.

Pancreatic Cancer: **Workup**

- **Upper Endoscopy**
  - ERCP → Biliary stent for jaundice (**AFTER pancreas CT**)
  - Endoscopic ultrasound (EUS) + FNA biopsy for tissue diagnosis

- **Serum CA 19-9 Level** (after bilirubin has normalized)
  - Tumor marker associated with disease burden & prognosis
  - Elevated at diagnosis and failure to normalize = **worse prognosis**

FIGURE 2: Kaplan Meier analysis of OS for NT according to CA19-9 response to therapy



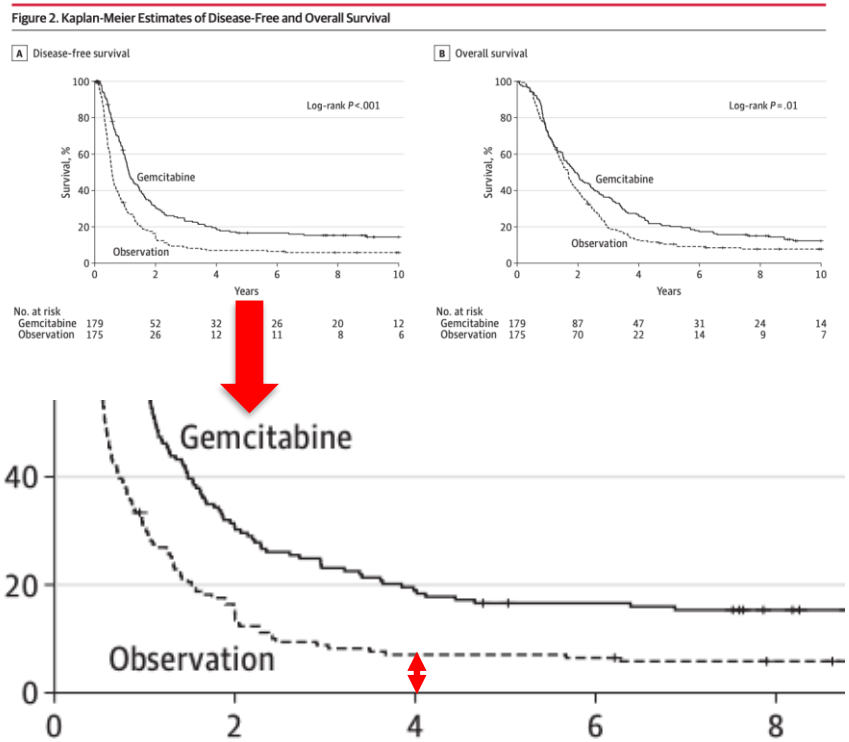
Cohort	Total (n)	Events (n)	Censored (n)	Median OS (mo)	SE	95% CI
NT/Normal	50	12	38	Undefined	-	-
NT/+Normalized	79	34	45	52	8.3	(36, 68)
NT/-Normalized	98	48	50	30	2.7	(25, 35)

Newhook, TE, Vreeland, TJ, Griffin, JF, et al. Prognosis Associated with CA19–9 Response Dynamics and Normalization During Neoadjuvant Therapy in Resected Pancreatic Adenocarcinoma, Annals of Surgery: August 20, 2021 - Volume - Issue - doi: 10.1097/SLA.0000000000005184

Pancreatic Cancer: **Management**

- Most patients now receive <u>neoadjuvant chemotherapy</u> (+/- chemoXRT) before surgery
  - Borderline = Standard of care
  - Becoming more common for primarily resectable disease **(ALL patients in the Piedmont system). WHY??**
    - **<u>Biology-driven disease!!!</u>**
    - Surgery in necessary, but not sufficient for cure → Systemic dz at presentation
    - **<u>Only ~50% of surgery first patients receive chemotherapy in the US!!!</u>**
    - Selects for patients who will benefit from resection = **"good biology"**

CONKO-001

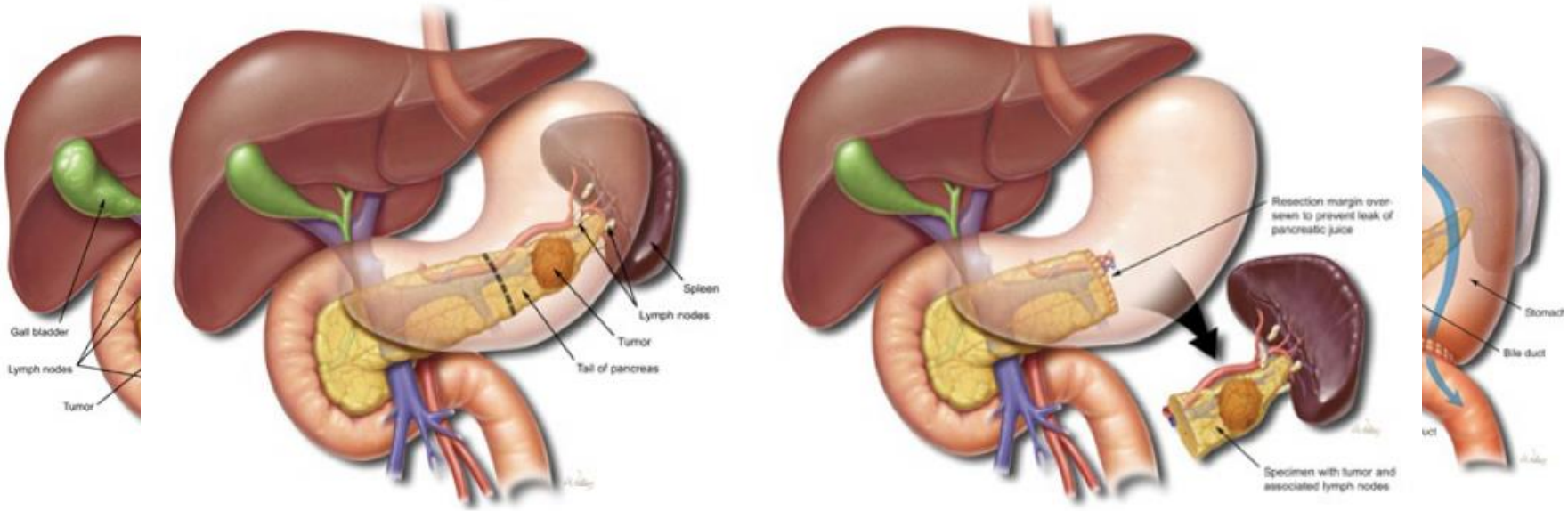


Oettle H, Neuhaus P, Hochhaus A, et al. Adjuvant Chemotherapy With Gemcitabine and Long-term Outcomes Among Patients With Resected Pancreatic Cancer: The CONKO-001 Randomized Trial. *JAMA*. 2013;310(14):1473–1481. doi:10.1001/jama.2013.279201

Pancreatic Cancer: **Surgery**

Head of Pancreas → Whipple (Pancreaticoduodenectomy)

Tail of Pancreas → Distal Pancreatectomy/Splenectomy



Pancreatic Cancer: **PCP Role – Screening**

- **NO** screening recommendations for average risk (**=most cases of PDAC**)

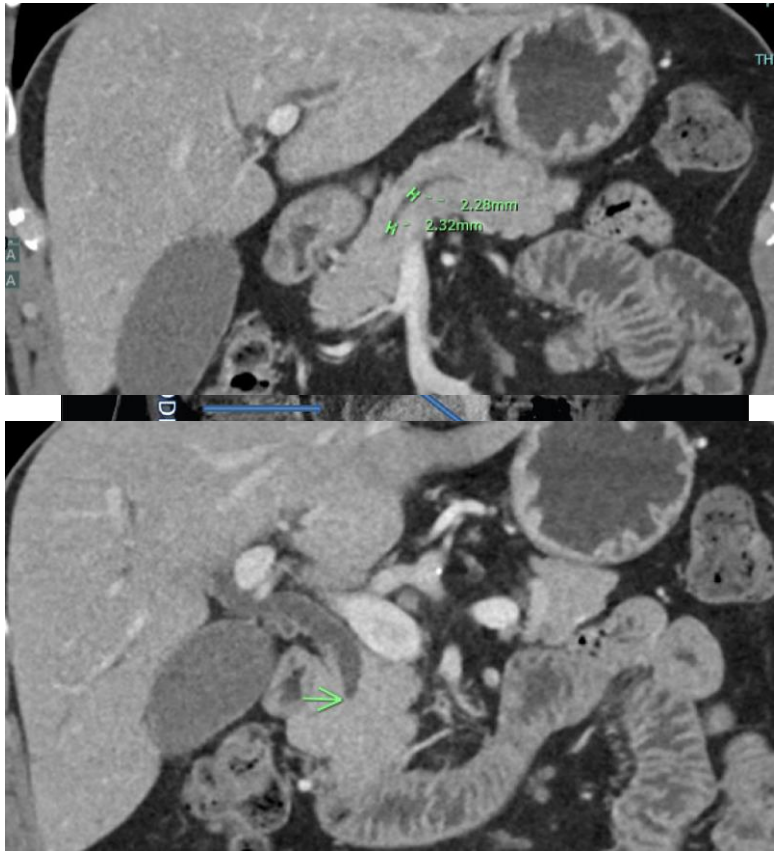
- Screening **IS** recommended for high-risk individuals (**AGA Guidelines**):
  - Identify high-risk patients → refer to specialist
  - High-risk = Family hx (2+ 1° or any 3 relatives), genetic syndromes, cystic neoplasms
    - High-risk/Familial: 50y or 10y younger that earliest familial case
    - Special Cases: 40y for CDKN2A/PRSS1 carriers & 35y for PJS
    - Pancreatic cysts per established guidelines
  - MRI & EUS → Interval depends on risk
  - Referral to genetic counselor
  - New-onset DM in high-risk patient should prompt workup

Harry R. Aslanian, Jeffrey H. Lee, Marcia Irene Canto, AGA Clinical Practice Update on Pancreas Cancer Screening in High-Risk Individuals: Expert Review, Gastroenterology, Volume 159, Issue 1, 2020, Pages 358-362, ISSN 0016-5085, https://doi.org/10.1053/j.gastro.2020.03.088.

Pancreatic Cancer: **PCP Role – New Dx**

- **Biliary Obstruction**
  - Cholangitis → ED for urgent biliary decompression
  - Otherwise, there's time for an appropriate workup
    - Reasonable to start with US or standard cross-sectional imaging
    - If mass, double-duct sign, or no obvious benign cause (e.g., stones)
      1. Appropriate cross-sectional imaging (panc CT)
      2. Upper endoscopy → Biliary decompression (ERCP) and biopsy (EUS) at the same time

Often more efficient to admit to hospital to expedite management



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Pancreatic Cancer: **PCP Role – During/After Treatment**

- Ongoing management on chronic conditions → Previously stable conditions often destabilize/decompensate during and after treatment

- Long term consequences of treatment:
  - New or worsening DM
  - Exocrine pancreatic insufficiency and malabsorption (ADEK vitamins) → PERT
  - Whipple → Micronutrient deficiencies (calcium, zinc, **iron**, B12)
  - Distal panc → Splenectomy vaccine boosters

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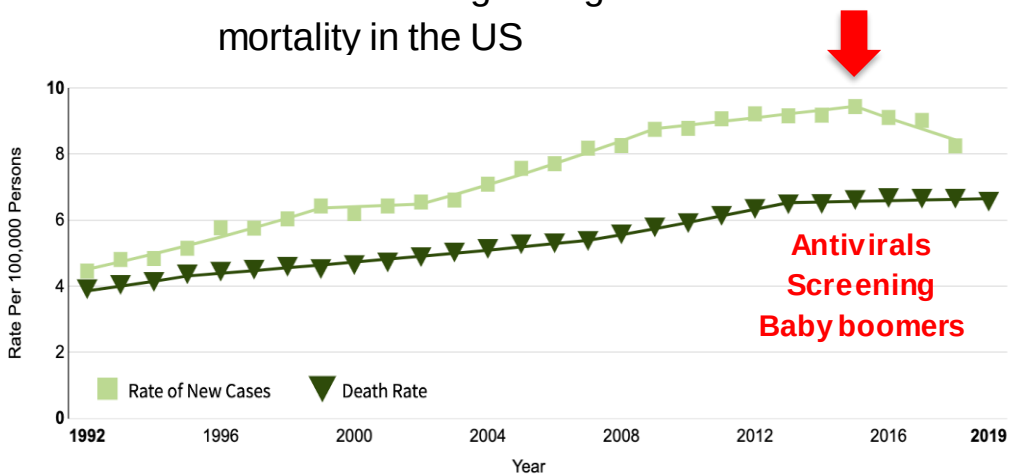
Hepatocellular Carcinoma: **Epidemiology**

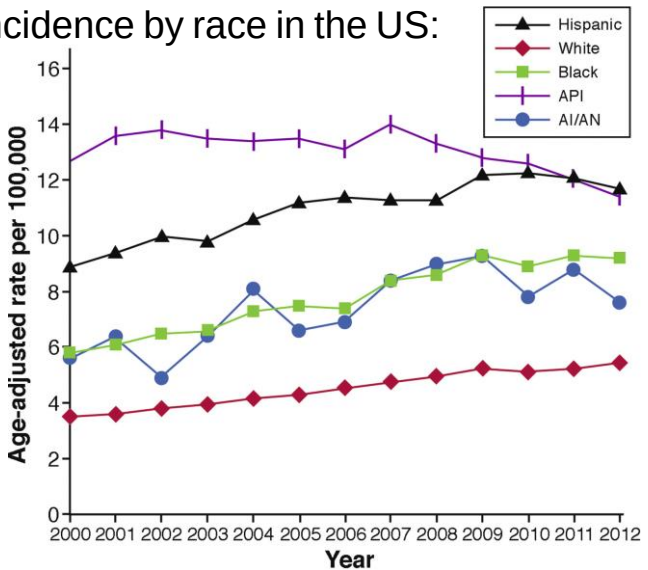
2022 HCC Projections:

- ~41,260 new cases & ~30,520 deaths
- Since 1980: Incidence ↑ **>3x**, mortality ↑ **>2x**
  - Incidence now ↓ & mortality ↑ less rapidly
  - Still the fastest growing cancer-related mortality in the US



Demographics/Survival:

- Male predominance (2-3:1)
- 5-yr OS 18% (2nd to PDAC)
  - Early stage + resection >60% 5y OS, but 70% recurrence
- Incidence by race in the US:



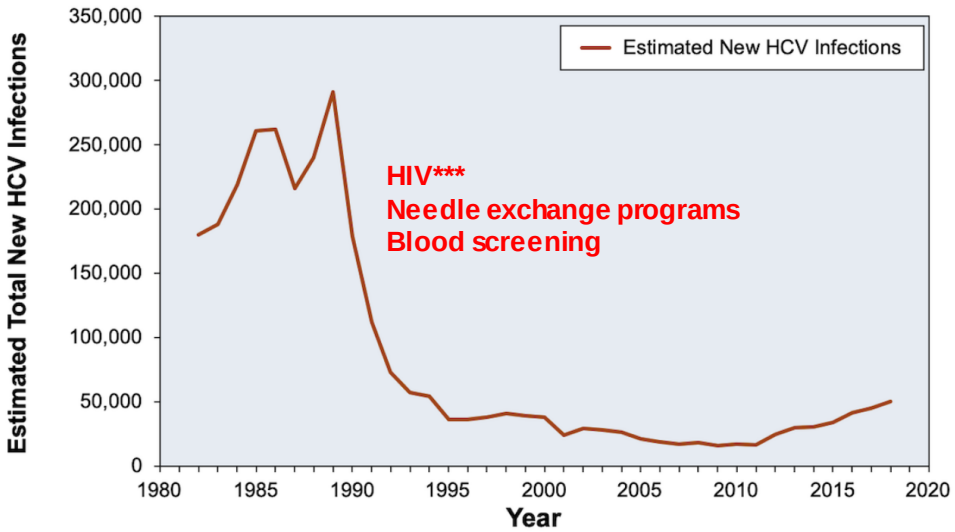
Siegel, RL, Miller, KD, Fuchs, HE, Jemal, A. Cancer statistics, 2022. *CA Cancer J Clin*. 2022. https://doi.org/10.3322/caac.21708
Laura Kulik, Hashem B. El-Serag, Epidemiology and Management of Hepatocellular Carcinoma, Gastroenterology, Volume 156, Issue 2, 2019, Pages 477-491.e1, ISSN 0016-5085, https://doi.org/10.1053/j.gastro.2018.08.065.
https://seer.cancer.gov/statfacts/html/livibd.html

Hepatocellular Carcinoma: **Risk Factors**

- Chronic liver inflammation/**Cirrhosis** → 90% of HCC in a background of cirrhosis, annual risk 2-4%
  - Chronic HCV → RR 20-30. Peak HCV cohort (born 1945–1965) has disproportionately high incidence
  - Chronic HE
  - EtOH cirrh
  - NAFLD/NA
    - Faste
  - Hemochro

HIV

- The usual su rome
- Aflatoxin exp



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Amit G. Singal, Pietro Lampertico, Pierre Nahon, Epidemiology and surveillance for hepatocellular carcinoma: New trends, Journal of Hepatology, Volume 72, Issue 2, 2020, Pages 250-261, ISSN 0168-8278, https://doi.org/10.1016/j.jhep.2019.08.025.

Hepatocellular Carcinoma: **Presentation**

- Often no tumor-related symptoms in early stages
- When present, symptoms and physical findings usually 2/2 to underlying cirrhosis
- Tumor progression may lead to liver decompensation → ascites, variceal bleeding, encephalopathy, etc
- Acute abdominal pain → Tumor rupture and intraperitoneal hemorrhage
- Jaundice from progressive liver failure or biliary obstruction from tumor invasion/compression
- Paraneoplastic syndromes: hypoglycemia, thrombocytosis, erythrocytosis, hypercalcemia, or watery diarrhea

Dimitroulis D, Damaskos C, Valsami S, et al. From diagnosis to treatment of hepatocellular carcinoma: An epidemic problem for both developed and developing world. World J Gastroenterol. 2017;23(29):5282-5294. doi:10.3748/wjg.v23.i29.5282

Hepatocellular Carcinoma: **Screening**

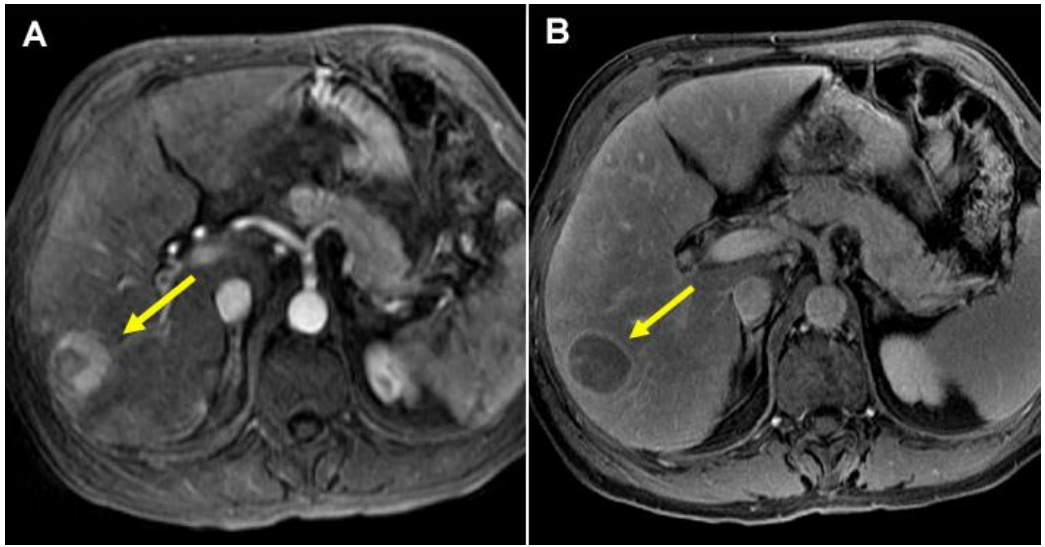
- **Screening Works:**
  - 37% ↓ mortality (chronic HBV +/- cirrhosis)
  - ↑ 3-yr survival (51% vs 28%)
  - Dx at earlier stage and ↑ tx with curative intent
- **Screening currently underutilized:**
  - Only ~20% of patients with cirrhosis get consistent screening (50-70% any screening at all)
  - <10% with HCC had consistent screening prior to dx
- **Screening Recommendations:** Cirrhosis + noncirrhotic HBV patients with FHx of HCC, African Americans, Asian M >40y, Asian F >50y (AASLD 2018)
  - Ultrasound Q 6 months +/- AFP
    - Tumor < 1 cm → repeat in 3 mo
    - Tumor ≥ 1 cm → cross-sectional imaging

Zhang BH, Yang BH, Tang ZY. Randomized controlled trial of screening for hepatocellular carcinoma. J Cancer Res Clin Oncol. 2004 Jul;130(7):417-22. doi: 10.1007/s00432-004-0552-0. PMID: 15042359.

Debra T. Choi, Hye-Chung Kum, Sulki Park, Robert L. Ohsfeldt, Yu Shen, Neehar D. Parikh, Amit G. Singal, Hepatocellular Carcinoma Screening Is Associated With Increased Survival of Patients With Cirrhosis, Clinical Gastroenterology and Hepatology, Volume 17, Issue 5, 2019, Pages 976-987.e4, ISSN 1542-3565, https://doi.org/10.1016/j.cgh.2018.10.031.

Hepatocellular Carcinoma: **Workup**

- **Liver protocol CT/MRI:** Relies on differential perfusion of HCC vs. normal liver
  - **HCC**: receives most of its blood supply from hepatic artery
  - **Normal liver**: majority of blood supply from portal venous system



Arterial Enhancement Portal Venous Washout

High-risk patients with characteristic imaging findings do NOT need a biopsy

Hepatocellular Carcinoma: **Workup**

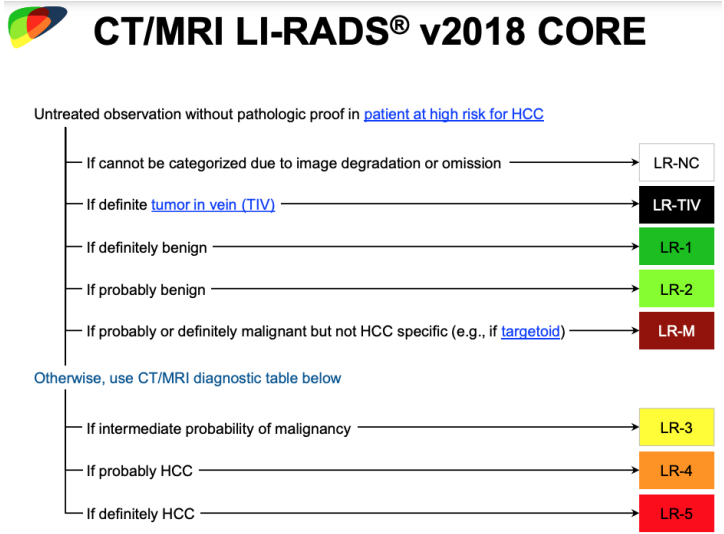
Liver Reporting & Data System (LI-RADS):

- Algorithm for imaging diagnosis of HCC
- Only applies to high-risk patients:
  - Cirrhosis
  - Chronic HBV
  - Current or prior HCC

Does NOT include HCV w/o cirrhosis

Hepatocellular Carcinoma and Overall Malignancy per LI-RADS Category

LI-RADS Category	HCC (%)	Overall Malignancy (%)
LR-1	0	0
LR-2	13 (8, 22)	14 (9, 21)
LR-3	38 (31, 45)	40 (31, 50)
LR-4	74 (67, 80)	80 (75, 85)
LR-5	94 (92, 96)	97 (95, 99)
LR-M	36 (26, 48)	93 (87, 97)



CT/MRI Diagnostic Table

Arterial phase hyperenhancement (APHE)		No APHE		Nonrim APHE		
Observation size (mm)		< 20	≥ 20	< 10	10-19	≥ 20
Count additional major features: • Enhancing "capsule" • Nonperipheral "washout" • Threshold growth	None	LR-3	LR-3	LR-3	LR-3	LR-4
	One	LR-3	LR-4	LR-4	LR-4 / LR-5	LR-5
	≥ Two	LR-4	LR-4	LR-4	LR-5	LR-5

LR-4 / LR-5

Observations in this cell are categorized based on one additional major feature:
- LR-4 – if enhancing "capsule"
- LR-5 – if nonperipheral "washout" **OR** threshold growth

https://www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/LI-RADS/CT-MRI-LI-RADS-v2018

Hepatocellular Carcinoma: **Workup**

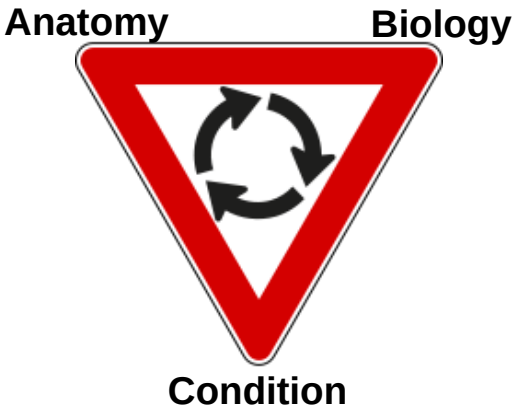
Role for Biopsy?

- High risk patients with inconclusive LIRADS (LIRADS 3/4/M)
- Patients with a suspicious mass but no risk factors (NOT high risk)
- Suspicion for combined HCC & ICC
- Elevated CA 19-9, CEA, or h/o another cancer that can met to liver
- Need for histological evaluation and/or molecular studies

Chernyak V, Fowler KJ, Kamaya A, Kielar AZ, Elsayes KM, Bashir MR, Kono Y, Do RK, Mitchell DG, Singal AG, Tang A, Sirlin CB. Liver Imaging Reporting and Data System (LI-RADS) Version 2018: Imaging of Hepatocellular Carcinoma in At-Risk Patients. Radiology. 2018 Dec;289(3):816-830. doi: 10.1148/radiol.2018181494. Epub 2018 Sep 25. PMID: 30251931; PMCID: PMC6677371.

Hepatocellular Carcinoma: **Management**

- Multiple treatment options for localized HCC
- Management → ABCs



- **Anatomy**
  - Resectability
    - Surgical extent and safety (adequate future liver remnant)
    - Ability to recover from procedure
- **Biology**
  - Number, size, location of masses
  - AFP level
  - Time course
- **Condition** → medical operability/PS
  - Cirrhosis: compensated or decompensated
  - Will patient die of liver disease or liver cancer?
  - MELD score/Child-Pugh

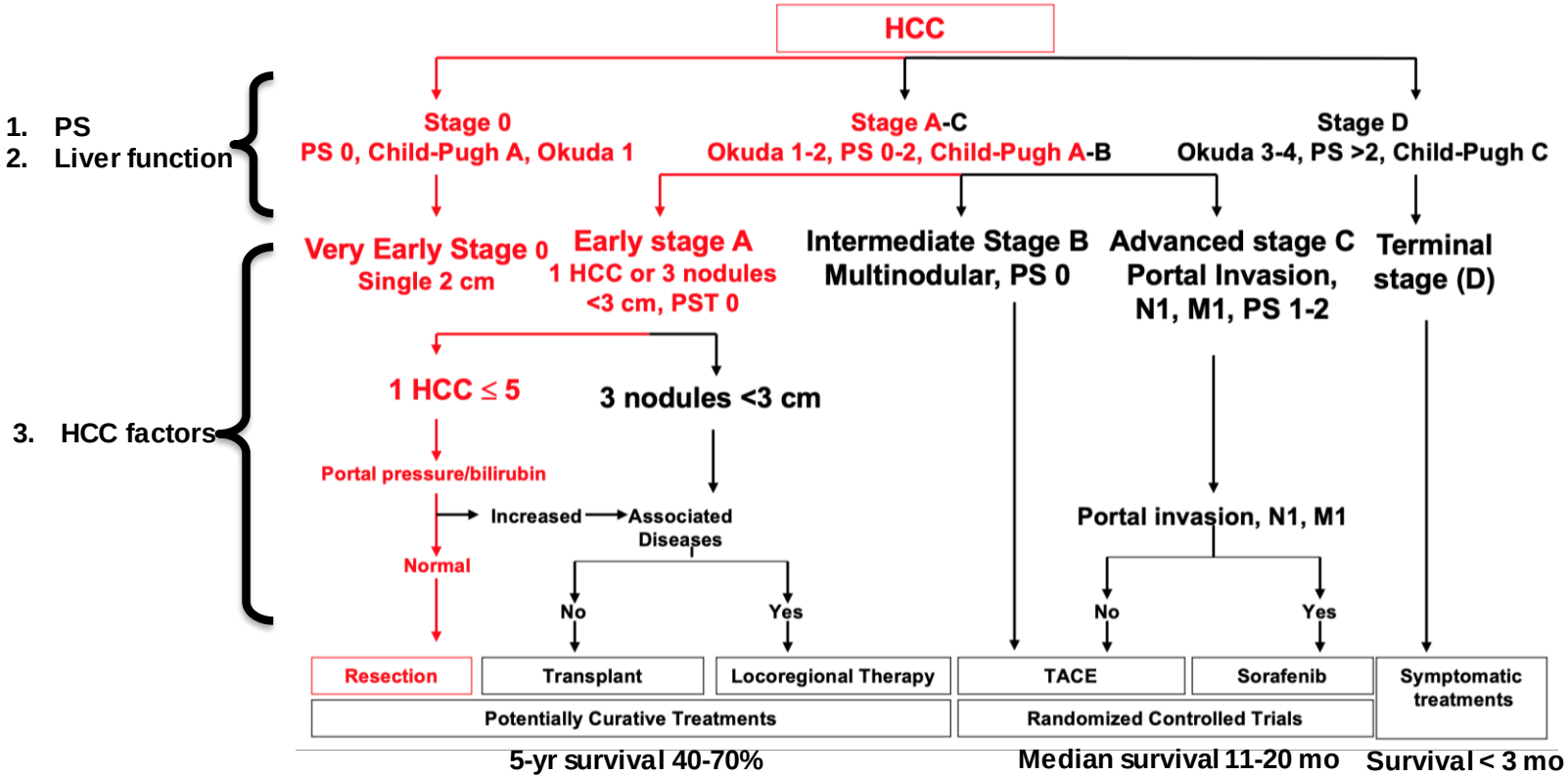
Resection/Ablation:
Limited disease
Preserved liver function

Transplantation:
Single ≤5 cm OR
Up to 3 all ≤ 3 cm
Cirrhosis with liver dysfunction

Liver-Directed/Chemotherapy:
Inoperable/Unresectable

Hepatocellular Carcinoma: **Management**

Barcelona Clinic Liver Cancer (BCLC) Classification



Llovet JM, Brú C, Bruix J. Prognosis of hepatocellular carcinoma: the BCLC staging classification. Semin Liver Dis. 1999;19(3):329-38. doi: 10.1055/s-2007-1007122. PMID: 10518312.

Hepatocellular Carcinoma: **Management**

- **HCC is a multidisciplinary disease:**
  - Medical oncology
  - Surgical oncology
  - Interventional radiology
  - Transplant

  - Every patient deserves the **FULL** evaluation
  - Algorithms **<u>guide</u>** mgmt, but the final treatment plan is patient-specific

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Hepatocellular Carcinoma: **Management**

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Hepatocellular Carcinoma: **PCP Role**

- Viral hepatitis screening
- Screening high-risk HCC patients → can be done by PCP or referred to a GI hepatologist
- Optimization of modifiable risk factors:
  - EtOH/smoking cessation counseling → **Also barriers to treatment**
  - Healthy diet/exercise/weight loss

- During/After treatment → Depends on the treatment given the multiple therapy options
  - Maintain open communication with the multiD team
  - Optimize chronic conditions prior to starting with close follow-up and ongoing changes as needed

Competency Questions

1. A 58-year-old male just moved to town and presents to your office to establish care. He has no significant past medical history, is up-to-date on his health maintenance, and does not have any specific complaints at this time. When questioned about his family history, he reports that his father died of pancreatic cancer (diagnosed at age 75) and his sister was recently diagnosed with pancreatic cancer at the age of 65. He denies any other family history of GI cancers. Which of the following is true regarding this patient and his management?

    a) He is high-risk for developing pancreatic cancer and a baseline pancreas protocol CT scan should be performed to evaluate for a mass.

    b) He is high-risk for developing pancreatic cancer and he should begin screening at age 60 (10 years before the earliest familial case).

    c) He is high-risk for developing pancreatic cancer and he should be referred for genetic counseling and specialist evaluation to begin a screening program.

    d) He is average risk for developing pancreatic cancer and does not require routine screening.

    e) He does not meet criteria for increased risk of familial pancreatic cancer because only two relatives have confirmed cases, but he should enter a screening program if he develops any red flag symptoms.

Competency Questions

Explanation to #1:

The correct answer is c.; he is high-risk for familial pancreatic cancer because he has confirmed cases in two first-degree relatives. Three total relatives is the threshold for familial cases of any non first-degree blood relation. The patient should be referred to a genetic counselor for evaluation and genetic testing. He should also be referred to a specialist (gastroenterologist or pancreatic surgeon) to initiate a multidisciplinary screening program. Screening should begin now because the recommendation is to start at age 50 or 10 years before the earliest familial case if that is younger. The recommended imaging modalities for screening are alternating MRI and EUS. There is currently no recommendation or role for a baseline pancreas protocol CT. You should not wait for symptoms in high-risk patients; symptoms are not always present and when they are, it often indicates more advanced disease.

Competency Questions

2. A 65-year-old African American female patient of yours presents to clinic with 2-3 months of mild abdominal discomfort, vague GI complaints, and itching that started last week. She reports mild intermittent nausea and diarrhea, but no vomiting. She feels she is eating normally, but chart review reveals she has lost 15 lbs since her last visit. She denies fevers and chills, but does feel fatigued. On exam she is in no acute distress. She has mild scleral icterus and a benign abdominal exam with no palpable masses. You initiate a workup with labs and an abdominal US. WBC is 6, total bilirubin is 5, lipase is 88, and US shows dilated intra- and extrahepatic bile ducts with abrupt tapering in the head of the pancreas, a dilated pancreatic duct, and no obvious stones. The most appropriate next step in management is:

    a) Instruct the patient to present to the ED for urgent endoscopic biliary decompression.

    b) Outpatient referral to gastroenterology for biliary decompression and biopsy.

    c) Outpatient percutaneous biliary catheter placement and CT-guided biopsy by interventional radiology.

    d) Obtain an MRI/MRCP to rule out choledocholithiasis.

    e) Obtain a pancreas protocol CT scan to evaluate for a pancreatic head mass.

Competency Questions

Explanation to #2:

The correct answer is e; obtain a pancreas protocol CT scan due to high suspicion for pancreatic cancer. You may also refer the patient to a pancreatic cancer specialist or HPB surgeon to facilitate the appropriate workup and avoid redundant imaging. This patient is presenting with painless jaundice. The term “painless jaundice” is a misnomer because most patients will report abdominal symptoms/discomfort upon questioning. She is showing no signs of systemic toxicity (does not need emergent biliary decompression) and the clinical history/US findings are concerning for malignant biliary obstruction. The US describes the classic “double-duct sign” where the dilated common bile duct and dilated pancreatic duct converge, taper, and disappear in the head of the pancreas due to an obstructing pancreas cancer. With these findings and this clinical presentation, choledocholithiasis is less likely and additional workup with MRI is not needed. Pancreas protocol CT scan should be performed prior to stent placement and biopsy when possible. IR percutaneous biliary decompression is only indicated if endoscopic stent placement is unsuccessful. CT-guided pancreas biopsy is generally reserved for situations where EUS/FNA has failed.

THANKS!

Feel free to reach out to me directly with any questions or advice when you encounter these patients – I'm always happy to help!

James.Griffin@Piedmont.org
410-615-3377 (Cell)

Resources

- ME!! – James.Griffin@Piedmont.org, 410-615-3377 (cell)
- National Comprehensive Cancer Network (NCCN): https://www.nccn.org/home
- AGA Pancreatic Cancer Screening Guidelines:
  - Aslanian HR, Lee JH, Canto MI. AGA Clinical Practice Update on Pancreas Cancer Screening in High-Risk Individuals: Expert Review. Gastroenterology. 2020 Jul;159(1):358-362. doi: 10.1053/j.gastro.2020.03.088. Epub 2020 May 19. PMID: 32416142.
- Fukuoka Guidelines for IPMN:
  - Tanaka M, Fernández-Del Castillo C, Kamisawa T, Jang JY, Levy P, Ohtsuka T, Salvia R, Shimizu Y, Tada M, Wolfgang CL. Revisions of international consensus Fukuoka guidelines for the management of IPMN of the pancreas. Pancreatology. 2017 Sep-Oct;17(5):738-753. doi: 10.1016/j.pan.2017.07.007. Epub 2017 Jul 13. PMID: 28735806.
- American Association for the Study of Liver Diseases (AASLD) practice guidelines: https://www.aasld.org/