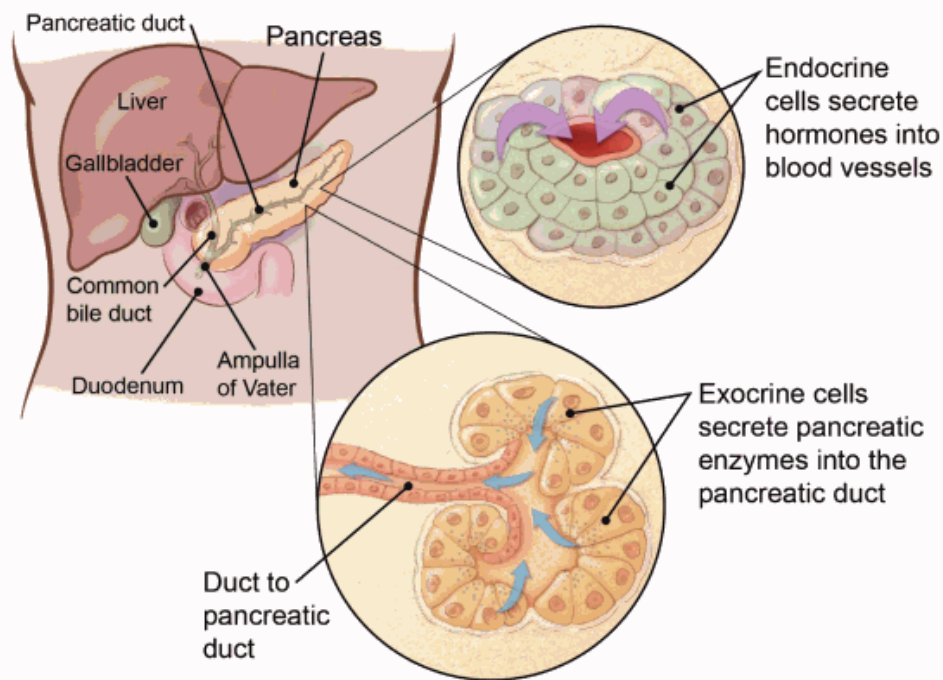


Addie Abohosh
Oncology Case Study – Exocrine Pancreatic Cancer



DESCRIPTION OF DISEASE

The pancreas is a gland located in the abdomen that helps break down ingested food by producing enzymes and hormones that metabolize nutrients and control blood sugar in the body.¹ With the pancreas function in mind, common symptoms that lead to diagnosis of pancreatic cancer are dark urine, light-colored or greasy stools, itchy skin, belly or back pain, weight loss or poor appetite, liver enlargement, diabetes, and nausea and vomiting.² Although, because of the deep placement of the pancreas within the body, most pancreatic cancers are asymptomatic until it has progressed to a more life-threatening stage.¹

Exocrine pancreatic cancer is the type of pancreatic cancer that is most abundantly found.³ Pancreatic adenocarcinoma occurs in about 95% of the exocrine pancreas cancer diagnoses.³ This type of cancer usually has origins in the ducts of the pancreas.³ About 53,070 people in the United States are estimated to be diagnosed with pancreatic cancer in 2016, with the risk in men being slightly higher.⁴ About 78% of those diagnosed will die of pancreatic cancer.⁴ There are other, less common, more-treatable kinds of exocrine cancer as well including adenosquamous carcinoma, squamous cell carcinomas, and more.

Typical symptoms for exocrine pancreatic cancer¹:

- Jaundice and related symptoms (dark urine, light-colored or greasy stool, itchy skin)
- Belly or back pain
- Weight loss and poor appetite

- Nausea and vomiting
- Gallbladder or liver enlargement
- Blood clots
- Fatty tissue abnormalities
- Diabetes

Symptoms affected by/affecting nutrition

Symptoms affecting nutrition include diabetes, nausea and vomiting, fatty tissue abnormalities, weight loss and poor appetite and gallbladder and liver enlargement.

Typical laboratory values seen with disease ^{5,6}

- Liver function tests
- CA 19-9
- Carcinoembryonic antigen (CEA)
- Chromogranin A (CgA)
- Glucose and C-peptide
- Serotonin levels
- WBC count
- Electrolyte and renal profile
- GI function tests

Specific MNT used to treat disease

Energy and protein needs should always be met with oncology patients. Poor nutrition status is linked with increased mortality, increased re-admittance, decreased tolerance to radiation, and increased length of stay in the hospital setting. ⁷ The MSJ equation should be used to calculate energy needs, or 2-15 kcal/kg for obese, 25-30 for nonambulating patients, 30-35 for patients who are slightly hypermetabolic, and 35+ for those who are severely stressed or hypermetabolic. ⁸ The use of omega-3 supplements does not decrease weight loss in pancreatic cancer patients. ⁶ Antiemetics or prokinetics can be given to patients to mitigate radiation and chemotherapy side effects. ⁸ If goal needs cannot be met through oral intake due to discomfort, nausea, vomiting, or uncontrollable diarrhea, EN or PN should be initiated as seen fit. ⁹ The level of tolerance to radiation therapy may increase with EN and PN. ¹⁰

Typical disease progression, medical treatment

About 78% of people diagnosed with pancreatic cancer will die of this disease. ⁴ There are some diagnoses with greater survival rates, but pancreatic cancer is often a lethal diagnosis unless caught early. ⁴ Pancreatic cancer can be staged as described below. ¹¹ Typical medical treatment includes surgery, ablation or embolization treatments, radiation, and chemotherapy. ¹² The treatment decision is based on patient age, other health

conditions, stage of cancer, surgery/removal affectiveness, likelihood that treatment will be a cure, and patient feelings about side effects.¹²

Stages of pancreatic cancer¹¹

Once the T, N, and M categories have been determined, this information is combined to assign an overall stage of 0, I, II, III, or IV (sometimes followed by a letter).

Stage	Stage grouping	Stage description
0	Tis, N0, M0	The tumor is confined to the top layers of pancreatic duct cells and has not invaded deeper tissues. It has not spread outside of the pancreas. These tumors are sometimes referred to as pancreatic carcinoma in situ or pancreatic intraepithelial neoplasia III (PanIn III).
IA	T1, N0, M0	The tumor is confined to the pancreas and is 2 cm across or smaller (T1). The cancer has not spread to nearby lymph nodes (N0) or distant sites (M0).
IB	T2, N0, M0	The tumor is confined to the pancreas and is larger than 2 cm across (T2). The cancer has not spread to nearby lymph nodes (N0) or distant sites (M0).
IIA	T3, N0, M0	The tumor is growing outside the pancreas but not into major blood vessels or nerves (T3). The cancer has not spread to nearby lymph nodes (N0) or distant sites (M0).
IIB	T1-T3, N1, M0	The tumor is either confined to the pancreas or growing outside the pancreas but not into major blood vessels or nerves (T1-T3). The cancer has spread to nearby lymph nodes (N1) but not to distant sites (M0).
III	T4, Any N, M0	The tumor is growing outside the pancreas and into nearby major blood vessels or nerves (T4). The cancer may or may not have spread to nearby lymph nodes (Any N). It has not spread to distant sites (M0).
IV	Any T, Any N, M1	The cancer has spread to distant sites (M1).

NUTRITION CARE PLAN

Nutrition assessment

- Demographics: 68 yo Caucasian male
- Presenting diagnosis: Admitted with severe fatigue and low grade fever

- Medical history: pancreatic mass found in 6/2016, dx unresectable pancreatic cancer and CLL/SLL complicated by gastric outlet obstruction s/p gastrojejunostomy, related diarrhea and nausea, tonsillectomy, currently receiving chemotherapy treatment.
- Current Medications: Creon 12,000: 2 capsules TID, KCl, florastor, ½ NS + KCl @ 75mL/hr
- Relevant social history: Lives with wife who has dementia and son who is addicted to methamphetamine
- Height: 170.18 cm
- Weight: 69 kg
- BMI: $24 = (69 / (1.7018^2))$
- IBW: 148 lb or 67.3 kg = $(106 + (6 \times 7))$
- Relevant laboratory values: WBC (H) 15.4, RBC (L) 3.6, Hgb (L) 9.6, Hct (L) 29.1, RDW (H) 17, MCH (L) 267, Na (L) 130, Cl (L) 99, BUN (L) 5, Ca (L) 7.2, Mg (L) 1.6
 - Electrolytes imbalances may be due to diarrhea and fever presence in pt
- Nutrition-focused physical exam findings: Pt present with edema in extremities, two pressure ulcers to bilateral buttocks (left buttock stage II, right buttock unstageable per WOCN). Pt c/o ascites reaccumulating as well as abdominal pain. Pt. says that diarrhea has decreased and there is no current nausea and vomiting. No SOB, no chest pain, alert and oriented, normal motor function.
- Diet/food history: Current diet order is a normal diet with no restrictions. Pt c/o slow eating habits due to gastrojejunostomy and some pain while swallowing. Pt concerned that he will not be able to meet his calorie and protein needs in order to maintain body weight. Medical nutrition high cal high protein supplements were ordered and are given with each meal to encourage energy intake.
- Comparison of patient to typical disease profile: Pt diagnosis is complicated by the CLL/SLL, making his dx more lethal than a typical pancreatic cancer patient. In addition, pt exhibits a great deal of social anxiety for his family as well as medical anxiety about his condition. These factors may contribute to a more rapid decline in health than a typical patient.

Nutrition diagnosis with PES statement⁹

Inadequate oral food and beverage intake related to poor/decreased appetite as evidenced by consumption of meals at 60-65%.

Nutrition intervention

- Calculated needs: 2,070 kcal, 90-103 g protein, 2,070 mL fluid
 - 1,423 kcal from MSJ
 - **2,070 kcal = 30 kcal/kg/day**
 - **90-103 g protein = 1.3-1.5 g/kg/day**
 - **fluid intake = 30 mL/kg/day**
- Meals and snacks: strongly encourage po intake.

- Medical food supplements: will continue to send high cal high protein supplement (350 cal, 20 g protein/bottle)
- Nutrition Education: pt provided with list of energy dense foods to consume in order to meet energy needs. Pt verbalized understanding and wants to comply.

Nutrition monitoring and evaluation

- Food and Beverage intake: goal for pt to meet 80-100% of energy needs
- Anthropometrics: goal to maintain LBM and weight status
- Digestive system: goal for <500mL / day of stool output
- Electrolyte and renal profile: electrolytes to be WNL
- Pt to be seen again in 7 days unless discharged to skilled nursing facility prior to that date

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