Nutritional Care of patients with Acute Pancreatitis

Site Applicability

All VCH & PHC Acute Care sites

Practice Level

Basic Skills for the following profession (within their respective scope of practice) in acute care settings:

- RD

Need to Know

General Considerations

Acute pancreatitis (AP) is an inflammatory disease in which auto-digestion of the pancreas occurs. The most common causes are gallstones and alcohol abuse. Other causes include biliary tract disease, pancreatic cancer, trauma, certain hyperlipidemias, AIDS, and endoscopic retrograde cholangiopancreatography (ERCP).[1] AP can manifest as a mild transient illness or a severe and rapidly fatal disease. Attacks are either isolated or recurrent, leading to acute on chronic pancreatitis.

AP is an evolving disease, but can generally be categorized as either mild to moderate or severe at different times during a patients hospital stay. Severity of AP is determined by a combination of clinical features and diagnostic imaging.[1,2] Although levels do not correlate with severity, AP typically includes significantly elevated serum pancreatic enzyme concentrations (amylase and lipase), raised serum glucose and elevated white blood cell count.[1,2]

Nutritional status needs to be monitored closely during AP. Energy and protein needs are increased to varying extents in patients with AP, more so when compounded by sepsis or trauma. Mild AP does not significantly increase metabolic requirements or alter nutritional status; whereas severe AP induces a hypermetabolic and catabolic state. Nutritional status may deteriorate rapidly due to prolonged periods of suboptimal intake related to restrictive diets, ileus, nausea, vomiting and/or pain.[3]

Management

The management of acute pancreatitis, depending on the severity, can include one or all of the following: medical therapy, dietary intervention, and surgery.

Nutrition support should be designed to meet metabolic demands without exacerbating symptoms and should be considered in any patient regardless of the severity of disease if oral intake is not anticipated to be adequate within 5-7 days of onset of symptoms.[4] Nutrition support should be considered earlier if baseline nutrition status is compromised.[5]

Compared with parenteral nutrition (PN), enteral nutrition (EN) has been associated with a reduction of the inflammatory stress response, fewer septic complications, decreased length of stay, and reduced mortality.[1-10] Pancreatic ascites, pseudocysts, and pancreatic fistulae are not absolute contraindications to EN.[4] The most recent literature suggests that gastric delivery of EN is safe and well tolerated in some patients with acute pancreatitis.[2,4-11] Placement of a nasogastric tube is a simple routine procedure that facilitates the delivery of early EN, which in turn can reduce the incidence of ileus and may improve outcomes.[1,2,5,8-11] Jejunal feeding may be required for patients in whom gastric feeding is contraindicated or not tolerated.[4,5,8-11]

Diet progression to a regular diet (providing 30% of calories from fat) can be started in consultation with the patient and attending physician once abdominal pain, distention, nausea, and vomiting have improved.[1,2,7,12,13] Low fat diets are not generally recommended for the treatment of AP; a balanced healthy diet as described in Eating Well with Canada's Food Guide is safe and appropriate.[7,13] However, when AP is caused by hypertriglyceridemia or based on individual symptom management and tolerance, patients may

benefit from temporarily restricting fat in the diet. In severe cases of AP or if there is pancreatic damage, steatorrhea that occurs when fat intake is liberalized may indicate compromised pancreatic exocrine function and supplementation with pancreatic enzymes may be required.[1]

Practice Guideline

Nutrition Intervention

All patients admitted with the diagnosis of AP should be screened for disease severity, nutrition risk and nutritional status[1,2,4,5]

- **Mild to Moderate Pancreatitis *(characterized by the absence of organ failure and local or systemic complications)*** [14]
  Nutrition support is not typically required in cases of mild to moderate pancreatitis as most patients resume oral intake within 7 days.[4,5,14] Patients at high nutrition risk who have moderate pancreatitis may require nutrition support.[5] Nutrition support may be indicated sooner in malnourished patients.[5]
- **Moderate *(characterized by transient organ failure which resolves within 48 hours and/or local or systemic complications without persistent organ failure for greater than 48 hours) to Severe Pancreatitis (characterized by persistent organ failure that may involve one or multiple organs)*** [14]
  Early EN is indicated in patients with severe disease.[1,4-6,12] EN should be initiated as soon as fluid volume resuscitation is complete.[5,11] For moderate disease, consider initiation of EN 3 to 5 days post-admission if unable to meet nutritional needs via an oral diet.[2,7,14] For both moderate and severe disease, consider PN 5 days post-admission when EN is not feasible.[2,4,5,7] Nutrition support may be indicated sooner in malnourished patients.[5]
- **Acute on Chronic Pancreatitis**
  Nutrition intervention is similar to acute pancreatitis depending on the severity of the attack and the patient's nutritional status.

Nutrition Support Details

- **Initial nutrition support assessment**
  Special consideration must be given to patients at risk for refeeding syndrome when estimating energy requirements. Refer to Nutritional Management of Patients at Risk for Refeeding Syndrome and *site specific guidelines for Enteral Nutrition*.
- Refer to D-00-12-30069: Parenteral Nutrition Care and Management (Adult) in Acute and Community if PN is indicated.
- **Estimated nutritional needs for maintenance in moderate to severe acute pancreatitis:**[4,14]
  Energy: REE x 1.2 to 1.5 or 25 to 35 kcal/kg
  Protein: 1.2 to 1.5 g/kg/day
- **Feeding tube placement in AP**
  Nasogastric tubes may be used for administration of EN.[2,4,5,7-11] Jejunal feeding is only required if gastric feeding is contraindicated or not tolerated.[4,5,8-11] Jejunal feeding tubes (if required) must be placed distal to the Ligament of Trietz either endoscopically or under fluoroscopic guidance and require a physician's order. To ensure proper placement, the requisition must specify "Naso-jejunal feeding tube with the tip distal to the ligament of Trietz" and a Kangaroo™ Naso-Jejunal feeding tube should be sent with the patient for the procedure. This tube is not ward stock and may need a manager's approval for ordering.
- **Tube feeding initiation and progression**
  - Suggest starting tube feeds at 25 mL/hr using a standard polymeric formula and increase rate as tolerated by 25mL/hour every 4 to 12H to reach goal rate within 24 to 48 hours. Refer to Algorithm for Dietitian Role in Patients with Acute Pancreatitis. Refeeding syndrome risk should be considered when setting the initial goal rate; the goal rate can be increased once refeeding syndrome is no longer a concern. Refer to VCH/PHC Nutritional Management of Patients at Risk for Refeeding Syndrome and *site specific guidelines for Enteral Nutrition*.

- If a standard polymeric formula is not tolerated, consider a trial of semi-elemental formula.[5]
- When oral diet starts refer to VCH/PHC: Transitional Feeding Guideline: Tube to Oral (Adult)

- **Diet progression**
  It is usually safe to begin an oral diet when abdominal pain, nausea, vomiting, and distention have decreased or resolved and pancreatic enzyme levels, especially lipase, are consistently trending downward over 48 to 72 hours.[1,2,4,7,13] Once an oral diet is started, ongoing monitoring of abdominal pain, distention and pancreatic enzyme levels is required.

  If an oral diet has not started but you think it may be safe, discuss with the physician team and request a diet order. Historically the initial diet is clear fluids and diet progresses to solid food over a couple of days, although emerging evidence suggests a transition to a regular diet is generally well tolerated.[7,13] Common complications include abdominal pain, nausea, vomiting and/or diarrhea. The table below lists recommended actions to address complications that may arise.

Symptom	Severity	Recommended Action
Lipase increasing	Mild (increases by less than 50 points)	• Observe trends
	Severe (doubles or triples)	• Discuss with physician whether continuing current diet is safe or if trial of temporary downgrade to Clear Fluid diet is needed.
Abdominal pain	Mild continuous	• Alert RN
	Severe continuous	• Alert physician and RN. • Query complex pain referral
	Mild, always post-prandial	• Request patient track oral intake and pain spikes on paper
	Moderate, mostly post-prandial	• Assess current fat intake • Consider trial of low fat diet to aid in symptom management. • Liberalize diet as patient tolerates.
	Severe, mostly post-prandial	• Discuss with physician whether continuing current diet is safe or if trial of temporary downgrade to Clear Fluid diet is needed.
Nausea or vomiting	Mild	• Encourage usage of antiemetics as needed
	Severe	• Suggest regularly scheduled maxeran or domperidone QID ac meals and HS (not prn)
Diarrhea	Mild	• Monitor (Note frequency, volume and consistency of stool)
	Severe	• Rule out other causes: o Request screen for C. diff toxin o Review medications. Antibiotics, liquid medications or laxatives may exacerbate diarrhea. o Query if steatorrhea is due to pancreatic insufficiency
Steatorrhea	Mild	• Encourage small frequent meals. • Assess current fat intake and consider a trial of lower fat diet to aid in symptom management. • Liberalize diet as patient tolerates.
	Moderate	• As above (mild) but suggest pancreatic enzymes QID with meals and HS snack • *Note: If patient is severely malnourished and/or already on a reduced fat diet, try to delay further dietary restrictions until after a trial of enzymes*
	Severe	• Confirm timing of enzymes is at mealtimes and snack times (not before or afterwards) • Suggest increase enzyme dose • Trial low fat diet

Expected Client/Family Outcomes

- Improved client condition and improved nutrition status.

Patient/Client/Resident Education

- Assess discharge diet needs individually based on requirements and food tolerance
- Discharge diet education as required

Documentation

- As per VCH and PHC Documentation standards

Related Documents

VCH-PHC:

- BD-00-07-40058: Nutritional Management of Patients at Risk for Refeeding Syndrome
- BD-00-07-40066: Transitional Feeding Guideline: Tube to Oral (Adult)
- Diet Writing Guidelines

PHC:

- Enteral (Tube) Feeding Guidelines (IDG1050)

VCH:

- D-00-12-30069: Parenteral Nutrition Care and Management (Adult) – in Acute and Community
- VA Enteral Feeding Formulary
- VA D-200: Practice Guideline for Dietitians: Enteral Nutrition
- VA T-270: Tube Feeding: Care and Management
- RH: Enteral Nutrition

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VCH: *(Regional SharePoint 2nd Reading)*

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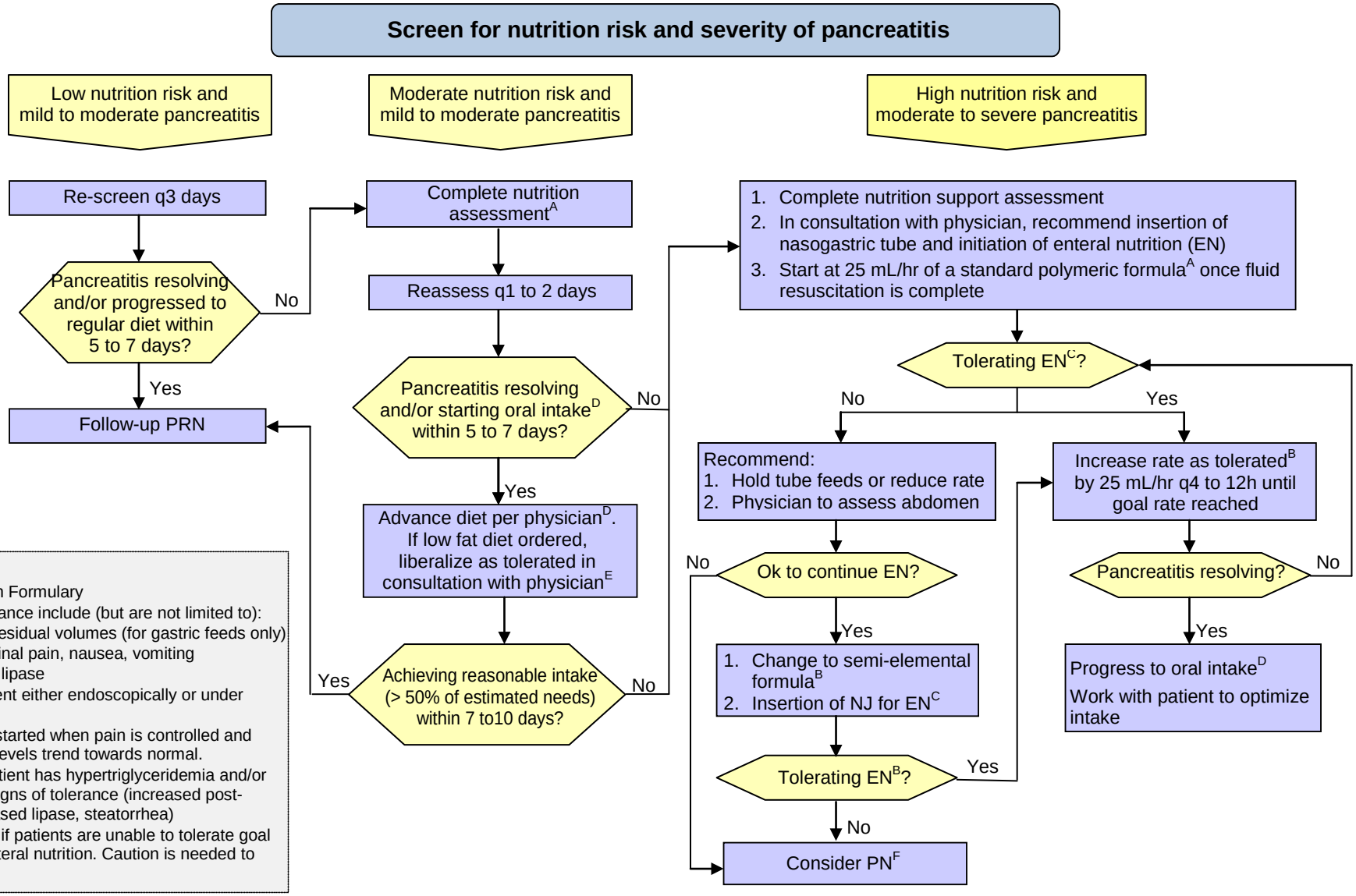
Appendix A: Algorithm for dietitian role in patients with acute pancreatitis



NOTES:

- **A.** See Enteral Nutrition Formulary
- **B.** Symptoms of intolerance include (but are not limited to):
  - Elevated gastric residual volumes (for gastric feeds only)
  - Increased abdominal pain, nausea, vomiting
  - Increasing serum lipase
- **C.** NJ requires placement either endoscopically or under fluoroscopy,
- **D.** Oral intake may be started when pain is controlled and pancreatic enzyme levels trend towards normal.
- **E.** Only restrict fat if patient has hypertriglyceridemia and/or has demonstrated signs of tolerance (increased post-prandial pain, increased lipase, steatorrhea)
- **F.** PN is only indicated if patients are unable to tolerate goal requirements via enteral nutrition. Caution is needed to avoid overfeeding.