Nutrition in Pancreatic Cancer

Edmond Sung
Consultant Gastroenterologist
Lead Clinician for Clinical Nutrition and Endoscopy
Overview

• The pancreas and nutrition
• Nutrition screening - can we do this well?
• Nutrition Support Team - What, who when and why
• Nutrition assessment – demystifying the concept
• Nutrition management – challenges that lie ahead
The pancreas and nutrition

Exocrine function
- Trypsin
- Chymotripsin
- Elastase
- Amylase
- Lipase

Endocrine function
- Insulin
- Glucagon
- Somatostatin
- Pancreatic polypeptide
Pancreatic cancer and nutrition link

Pancreatic cancer risk:
• increases by 10% per 5 unit rise in BMI
• increases by 20% if consuming >6 units alcohol/day
• increases by 29% per 120g/day of red meat in men
• increases by 22% per 25g/day of fructose

But limited evidence folate and selenium rich diet may reduce risks
Nutrition screening
Screening – Do we need it?

• 8 in 10 cases diagnosed at a late stage
• Early detection key to success in nutrition support
• 80% have significant weight loss at diagnosis
  • Bye A et al Support Cancer Care 2013
• 1 in 3 have weight loss > 10% of body weight
  • Davidson et al Clin Nutr 2004
• Cachexia associated with ↓QOL, ↓survival and treatment failure in pancreatic cancer
  • Ozola et al Pancreatology 2015
Nutrition screening in pancreatic cancer patients
Malnutrition - definition

- State of nutrition which a deficiency or imbalance of energy, protein and other nutrients causes measurable adverse effects on tissue/body form and function and clinical outcome.

- Malnutrition:
  - Body mass index <18.5 kg/m^2 suggest at risk)
  - Unintentional 10% weight loss in last 3-6 months
  - Body mass index <20 kg/m^2 with weight loss > 5% in last 3-6 months
MUST is a must!

• Malnutrition Universal Screening Tool (MUST)
• Assessment within 24 hours of admission and weekly after.
• 3 main domains
  – Body mass index (<18kg/m² suggest at risk)
  – Unintentional 10% weight loss in last 3-6 months
  – Acutely ill and unable to eat for >5 days
Step 1
BMI score

BMI kg/m²
>20 (>30 Obese) = 0
18.5-20 = 1
<18.5 = 2

Step 2
Weight loss score

Unplanned weight loss in past 3-6 months
% Score
<5 = 0
5-10 = 1
>10 = 2

Step 3
Acute disease effect score

If patient is acutely ill and there has been or is likely to be no nutritional intake for >5 days
Score 2

Step 4
Overall risk of malnutrition
Add scores together to calculate overall risk of malnutrition
Score 0: Low Risk
Score 1: Medium Risk
Score 2 or more: High Risk

Step 5
Management guidelines

0 Low Risk
Routine clinical care

- Repeat screening
- Hospital – weekly
- Care Homes – monthly
- Community – annually for special groups e.g. those >75 yrs

1 Medium Risk
Observe

- Document dietary intake for 3 days
- If adequate – little concern and repeat screening
- Hospital – weekly
- Care Home – at least monthly
- Community – at least every 2-3 months
- If inadequate – clinical concern – follow local policy, set goals, improve and increase overall nutritional intake, monitor and review care plan regularly

2 or more High Risk
Treat*

- Refer to dietitian, Nutritional Support Team or implement local policy
- Set goals, improve and increase overall nutritional intake
- Monitor and review care plan
- Hospital – weekly
- Care Home – monthly
- Community – monthly
- *Unless detrimental or no benefit is expected from nutritional support e.g. imminent death.

All risk categories:
- Treat underlying condition and provide help and advice on food choices, eating and drinking when necessary.
- Record malnutrition risk category.
- Record need for special diets and follow local policy.

Obesity:
- Record presence of obesity. For those with underlying conditions, these are generally controlled before the treatment of obesity.
How do we achieve this?

• Multidisciplinary assessment
• Education
• Education
• Education
Nutrition Support Team

- All acute hospitals should have a multidisciplinary nutrition support team and a nutrition support nurse

Evidence for specialist nutrition support

- >70% reduction in complications
- >40% reduction in mortality

Stratton et al. Eur J Gastroenterol Hepatol. 2007
May;19(5):353-8
When should you refer?

• Eaten little > 5 days or unlikely to eat for next 5 days
• Have a poor absorptive capacity, and/or have high nutrient losses and/or have increased nutritional needs from causes such as catabolism
Nutrition assessment

• Calculate basal metabolic rate
  – Henrys
  – 25-35kCal/kg (NICE 2006)
• Add factor for activity and diet induced thermogenesis
• Add factor when patient is metabolically stressed
• Fluid 30-35 mls/kg (oral) 25-30mls/kg IV
Nutrition management
The challenge

• Poor appetite
• Symptoms preventing oral intake
• Pancreatic exocrine failure
• Pancreatic endocrine failure
• Risk of refeeding syndrome
• Obstructed gastric outlet
• Routes of feeding
• Monitoring
Pancreatin

- Improves survival
- Porcine
- Not with hot fluids
- Taken at start of meal
- 50,000iu with meals, 25,000 with snacks
- Not to chew, can be mixed with yoghurt/fruit puree
- Enteral feeding: pancreatin V,
  - Low dose administered every 2-4 hours
  - Continuous infusion alongside feed
- Administer if:
  - 10% weight loss or more
  - Symptomatic
Refeeding

- Potentially fatal shift in fluids and electrolytes in malnourished
- >10% weight loss
- BMI <18.5
- ONS/enteral feeding can precipitate electrolyte disturbance
- Moderate – 50% requirements for 2 days
- Severe – 10Cal/kg build up over 4-7 days
- Monitor and replace potassium, magnesium, phosphate daily until stable
- Thiamine and vitamin B Co Strong
Treatment Strategies

• Enteral
  – Oral
  – Nasogastric feeding tube
  – Nasojejunal feeding tube
  – Duodenal stenting

• Parenteral (IV feeding)

• Post surgery
Oral nutrition

• If you’ve got guts, use it!
  – “Food first”
  – Fortifying foods, nourishing drinks
  – Vitamin supplementation
  – Oral nutritional supplements
  – Family involvement
  – Familiar foods
Naso-gastric feeding

• Inadequate or unsafe oral intake
• Assess for necessity
  – Incorrect placement & feeding: NEVER EVER EVENT
  – Uncomfortable, prone to accidental removal
  – Inpatient or short term outpatient treatment
Nasojejunal feeding
Nasojejunal feeding tubes
Endoscopic nasojejunal tube insertion

• Used in partial gastric outlet obstruction
• Requires oronasal pharyngeal exchange to convert oral to nasal exit
• Complications
  – Uncomfortable placement
  – Displacement
  – Tube blockage
  – Bleeding
  – Sinusitis
Oro-nasal exchange
Duodenal stenting

- Minimally invasive
- Quicker resumption of oral intake
- Reduced inpatient stay
- Stent stenosis and blockage
- Increased risk of symptoms recurrence
- Increased risk for further intervention
Surgical gastrojejunostomy

• Bypass obstruction
• Open vs laparoscopic
• Longer hospital stay
• Longer to achieve adequate oral intake
• Surgical and anaesthetic risks
• Gastrojejunostomy vs stenting
  • more major complications and more repeat interventions occurred after stent placement
    • Jeurnink et al J Gastroenterol. 2010
Parenteral nutrition
Parenteral nutrition

• Nutrition intravenously administered
• Hospital and community
• Indications:
  – inadequate or unsafe oral and/or enteral nutritional intake
  – a non-functional, inaccessible or perforated gastrointestinal tract
Parenteral nutrition: Pitfalls

• Cannot match quality of gastrointestinal food processing

• Higher risk nutrition treatment
  – Infections – CVP lines
  – Metabolic disturbance (glycaemic, liver cholestasis, electrolytes)

• Psychologically difficult for patients

• Specialist nutrition support administration and monitoring
Post Pancreaticoduodenectomy Nutrition

• 3 RCT comparing EN vs PN
• Evidence suggest EN is superior in improving nutritional status
• EN associated with:
  – Lower post op complications
  – Shorter hospital stay
  – Lower motality and morbidity
Thank you