# Approach to Malignant Bowel Obstruction

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# Background

- Occlusion of the lumen of bowels  or ineffective motility
- Complication of advance cancers

- Partial or complete

- No consensus in management, resources dependant
- High symptoms burden with poor prognosis

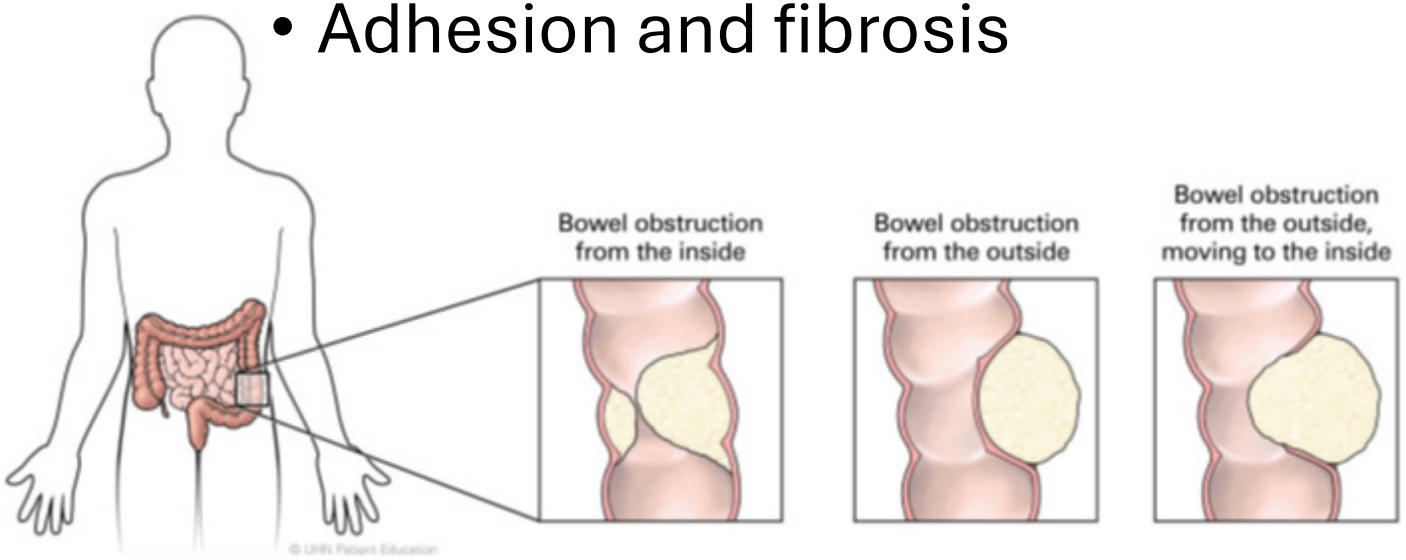
# Mechanism

## Mechanical Obstruction

- Intra-luminal obstruction
- Extrinsic occlusion - Mesenteric and omental masses
- Adhesion and fibrosis

## Functional Obstruction

- Motility disorders
  - Tumour infiltration of the enteric nervous system
  - Paraneoplastic neuropathy

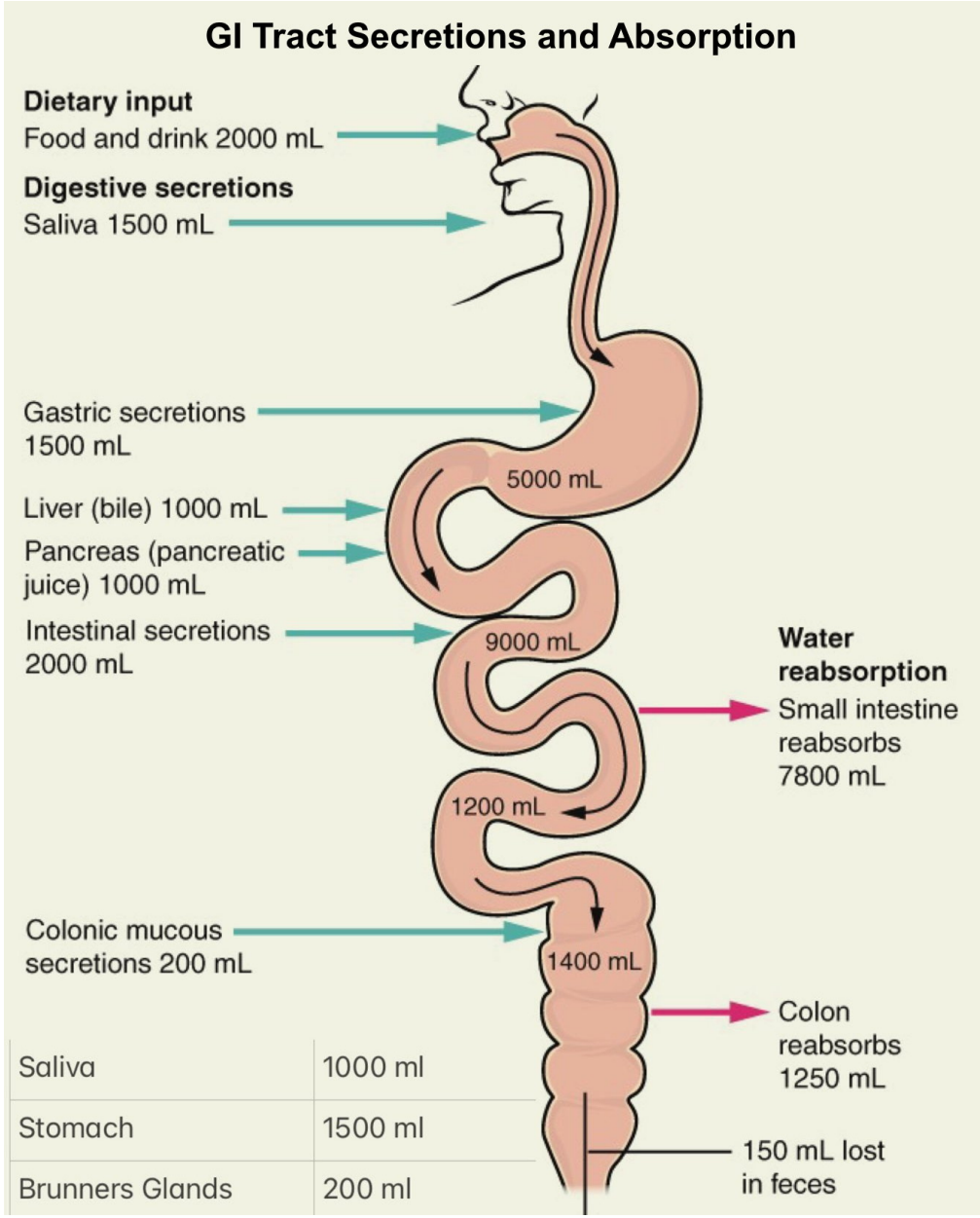



Cousins SE, Tempest E, Feuer DJ (2016) Surgery for the resolution of symptoms in malignant bowel obstruction in advanced gynaecological and gastrointestinal cancer. Cochrane Database Syst Re2016(1):CD002764.
Ripamonti CI, Easson AM, Gerdes H (2008) Management of malignant bowel obstruction. Eur J Cancer 44:1105–15

# How Common?

- Intra-abdominal
  - GI cancers - 10–28%
  - Ovarian - 51%
- Extra-abdominal
  - Melanoma
  - Breast

- The site of obstruction
  - 64% small bowel
  - 20% large bowel
  - 16% gastric outlet



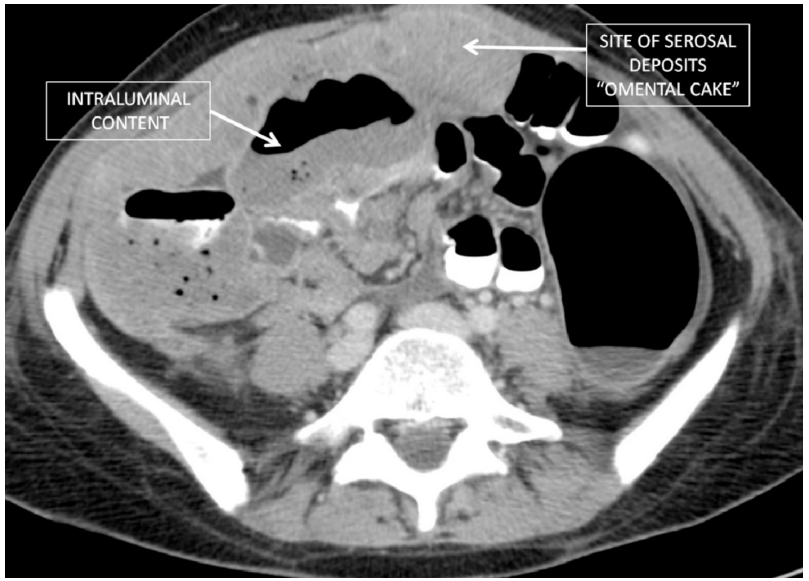

Cousins SE, Tempest E, Feuer DJ. Surgery for the resolution of symptoms in malignant bowel obstruction in advanced gynaecological and gastrointestinal cancer. Cochrane Database Syst Rev. 2016;2016(1)
Pujara D, Chiang YJ, Cormier JN, Bruera E, Badgwell B. Selective approach for patients with advanced malignancy and gastrointestinal obstruction. J Am Coll Surg. 2017

# Case Study

- 45-year-old lady with stage 4 ovarian cancer, had surgical removal and chemotherapy
- Was well
- Presented lethargy 1 month with nausea and bilious vomiting 7 times per day
- Aggravated by food and drinks
- No history of constipation until 3 days ago

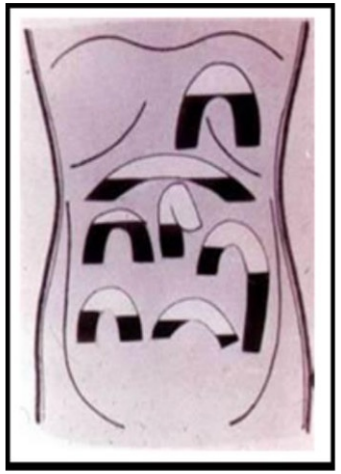
# Diagnosis

- MBO is a clinical diagnosis
- Confirmed with imaging
  - Gold standard is contrasted  CT
    - More value and provides diagnostic precision
    - Identify degree and level of obstruction
  - AXR
    - Moderate sensitivity, unable to detect the exact site, cause, or complications





AXR



Ninivaggi, Valeria et al. Malignant Bowel Obstruction in Patients with Advanced Ovarian Cancer: how to assess severity by identifying and reporting specific computed tomography findings.(2016).
Chang KJ, Marin D, Kim DH et al (2020) ACR appropriateness criteria® Suspected small-bowel obstruction. J Am Coll Radiol 17:S305-s314

# How to Manage MBO?

- **Alleviate symptoms**
- **Make patient able to eat**
- **Return patient home**

1) Consider

   Partial or Complete obstruction

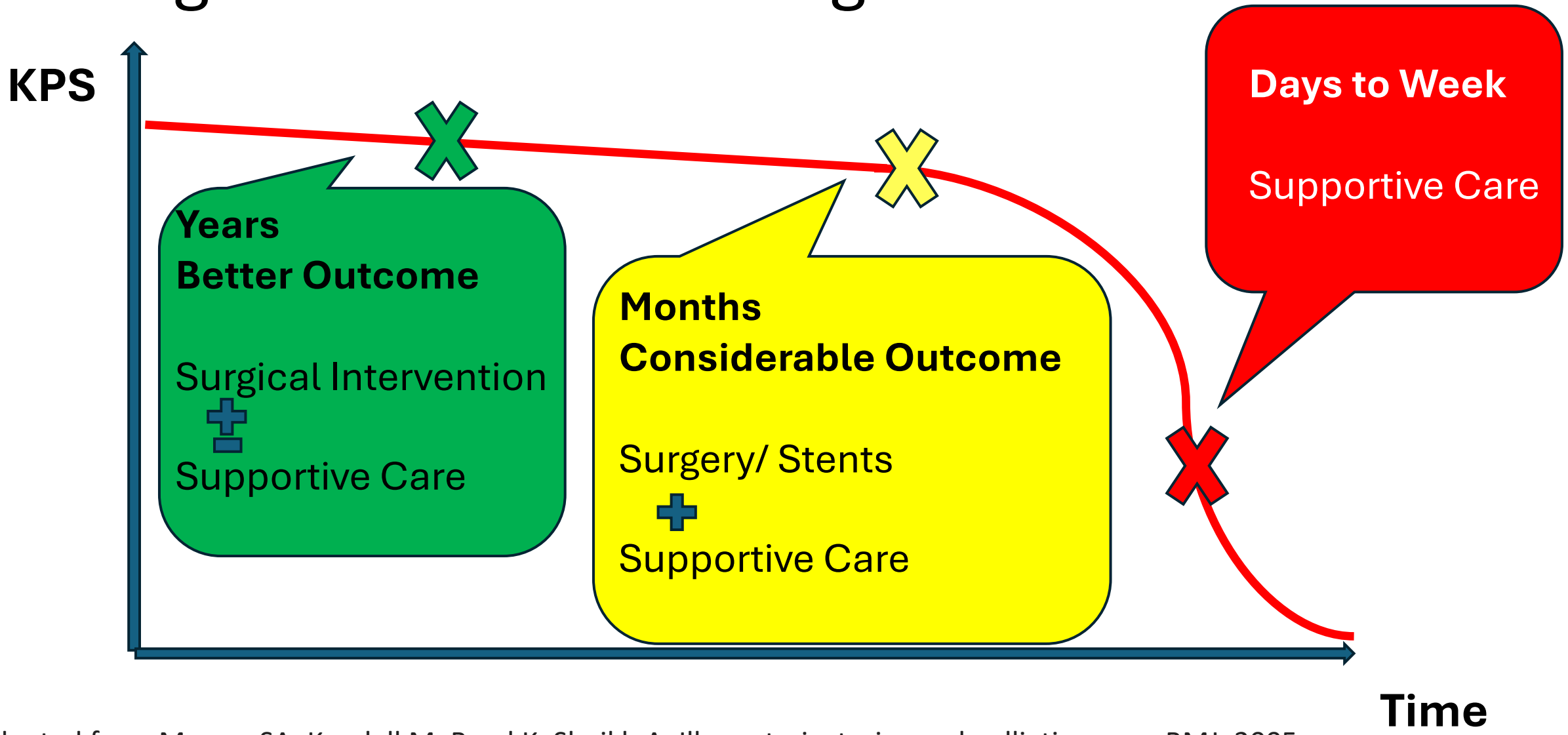
   Prognosis

2) Decide

   Interventional/ surgical management

   Medical management

# Management Based on Prognosis




Adapted from Murray SA, Kendall M, Boyd K, Sheikh A. Illness trajectories and palliative care. BMJ. 2005.

# 1) Consider Surgical Approach

- Tumour resection, debulking
- Resection or bypass
- Diversion/ colostomy
- Adhesiolysis

A systematic review of 868 patients with MBO ( Olson TJP, et al, 2014)

- palliate obstructive symptoms (32–100%),
- enable resumption of modified diet (45–75%)
- facilitate patient discharge to home (34–87%)

Mean survival of 6.4 months undergone surgical intervention; compared to non-surgical management of 4–5 weeks (Shariat-Madar B et al,2014)

# 1) Consider Surgical Approach

- In a highly selected patients
  - good performance status
  - longer treatment-free interval
  - single-site disease
  - albumin level
  - absence/small volume ascites

- Associated morbidity, with serious complications occurring in 7–44% of patients and mortality rates ranging from 6–42%

Pujara et al, (2017); Olson TJP, et al, (2014) ; Kolomainen D. F., Barton D. P. *(*2011) ;  Ripamonti C., Twycross R., Baines M., et al. *(*2001)

# Predictors of Poor Prognosis

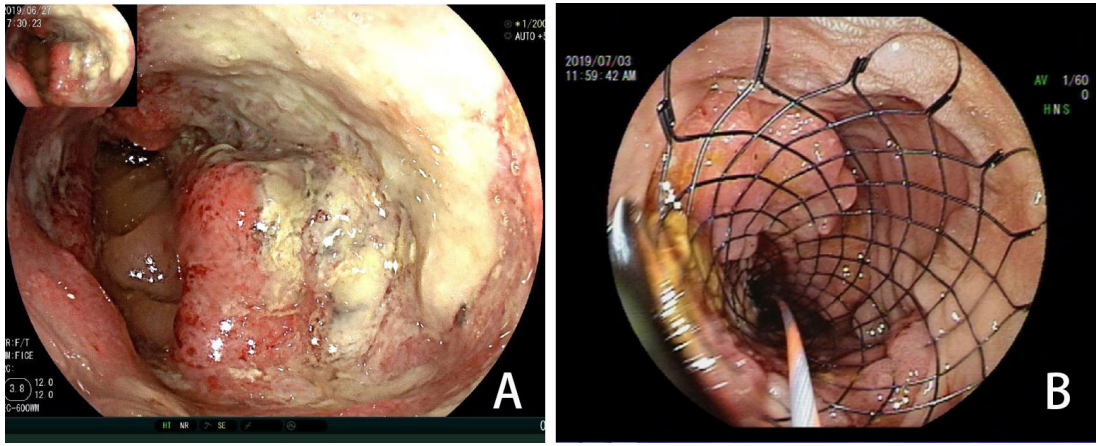
- Less likely to benefit
  - Intra-abdominal carcinomatosis
  - Multiple obstruction
  - Massive ascites
  - Palpable mass
  - Malnutrition
- Lab markers
  - High CRP, low albumin and leucocytosis

- Deteriorating performance status and the presence of other symptoms
  - Median survival 80 days
  - ECOG 0-1 – 222 days
  - ECOG 2 – 63 days
  - ECOG 3-4 – 27 days

Byrne ME, Cowan RA, Leska T, et al, (2018); , Gonzalez-Ochoa E, et al, (2022); Hui D, Hess K, dos Santos R et al (2015) ; Wright FC, Chakraborty A, Helyer L, et al,(2010).

# 2) Consider Stenting

- Less invasive approaches using self-expandable metallic stent (SEMS)
- Left-sided colonic obstruction, Gastric outlet obstruction
- Restore bowel function without creating a stoma

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Mabardy A., Miller P., Goldstein R., Coury J., Hackford A., Dao H. Stenting for obstructing colon cancer: fewer complications and colostomies. *Journal of the Society of Laparoendoscopic Surgeons*. 2015

Lee YC, Jivraj N, O'Brien C, Chawla T, et al,. Malignant Bowel Obstruction in Advanced Gynecologic Cancers: An Updated Review from a Multidisciplinary Perspective. Obstet Gynecol Int. 2018 May 17;2018:1867238.

# 3) Medical Management

**Partial Obstruction**

- The goal is to stimulate peristalsis and normalize gut function
- Get the NG tube out

**Complete Obstruction**

- The goal is to rest the bowel
- Relieve peristalsis and manage symptoms

CSCI where possible due to poor GI absorption
Access specialist team as cases usually complex

# Partial Obstruction - Steroids

- Dexamethasone is preferred
  - Anti-inflammatory and anti-secretory effect
  - Decrease intestinal wall oedema

- The optimal dose is not well established, a  dose between 4 and 16 mg of dexamethasone daily may be considered

- Addition of Dexamethasone to octreotide (+- H2 Antagonist or PPI) increase likelyhood of NG tube removal at 4-7 days

Hsu K, Prommer E, Murphy MC et al (2019);  Currow DC, Quinn S, Agar M et al (2015) ; Feuer DJ, Broadley KE (2000)Cochrane Database;  Minoura T, Takeuchi M, Morita T et al (2018)

# Antiemetics

- **Prokinetic drugs** (e.g. metoclopramide, domperidone) - **AVOID** in Complete MBO
- **Dopamine antagonist** (e.g Haloperidol)
- **Phenothiazines** (e.g. chlorpromazine, prochlorperazine, and methotrimeprazine (levomepromazine))
- **Serotonin (5-HT3) antagonists** (e.g. Granisetron).
  - In addition to dexamethasone and PRN haloperidol, significantly reduced the severity of nausea ($p < 0.001$) and a number of vomiting ($p < 0.001$). Up to 18% incidence of constipation
- **Thienobenzodiazepene antipsychotic** (e.g., Olanzapine)
  - one cross-sectional study, olanzapine reduced the average nausea scores and frequency of vomiting in partial BO

Madariaga A, Lau J, Ghoshal A, Dzierżanowski T, et al, MASCC (2022), Berger J, Lester P, Rodrigues L (2016), Mercadante S,Ferrera P, Villari P et al (2004) Kaneishi K, Kawabata M, Morita T (2012)

# Complete MBO – Somatostatin Analog – Octreotide Vs Hyoscine Butylbromide?

- Reduces intestinal and pancreas secretion and gastrointestinal motility, biliary contraction, and intestinal edema
- More effective than hyoscine butylbromide
  - In reducing nausea and vomiting and reduce NG tube output (levels of evidence: I; grade A)
  - in reducing continuous pain
- t1/2 of 1.8 h, require multiple daily dosing schedules/ infusions
- Expensive and not readily available

(Madariaga A, et al,2022; Currow DC, Quinn S, Agar M et al , 2015; Mercadante S, Ripamonti C, Casuccio A et al 2000; Peng X, Wang P, Li S, et al. ,2015; Ripamonti C, Mercadante S, Groff L et al , 2000; Mystakidou K, et al ,2002)

# A Common Drug H2 Blocker - The Role of Ranitidine ?

- Meta-analysis of Ranitidine and PPIs on gastric secretions pre-operatively
  - The use of Ranitidine resulted in reduction of gastric aspirate , on average by additional 0.22ml/kg
  - Ranitidine : 0.16ml/kg Vs PPI : 0.41 ml/kg Vs Placebo : 0.54ml/kg
- 84% of hospices reported using ranitidine for selected patients with MBO, (76% Hyoscine Butylbromide as a first line)

K. Clark; L. Lam; D. Currow (2009). *Reducing gastric secretions—a role for histamine 2 antagonists or proton pump inhibitors in malignant bowel obstruction?. , 17(12), 1463–1468.* doi:10.1007/s00520-009-0609-3

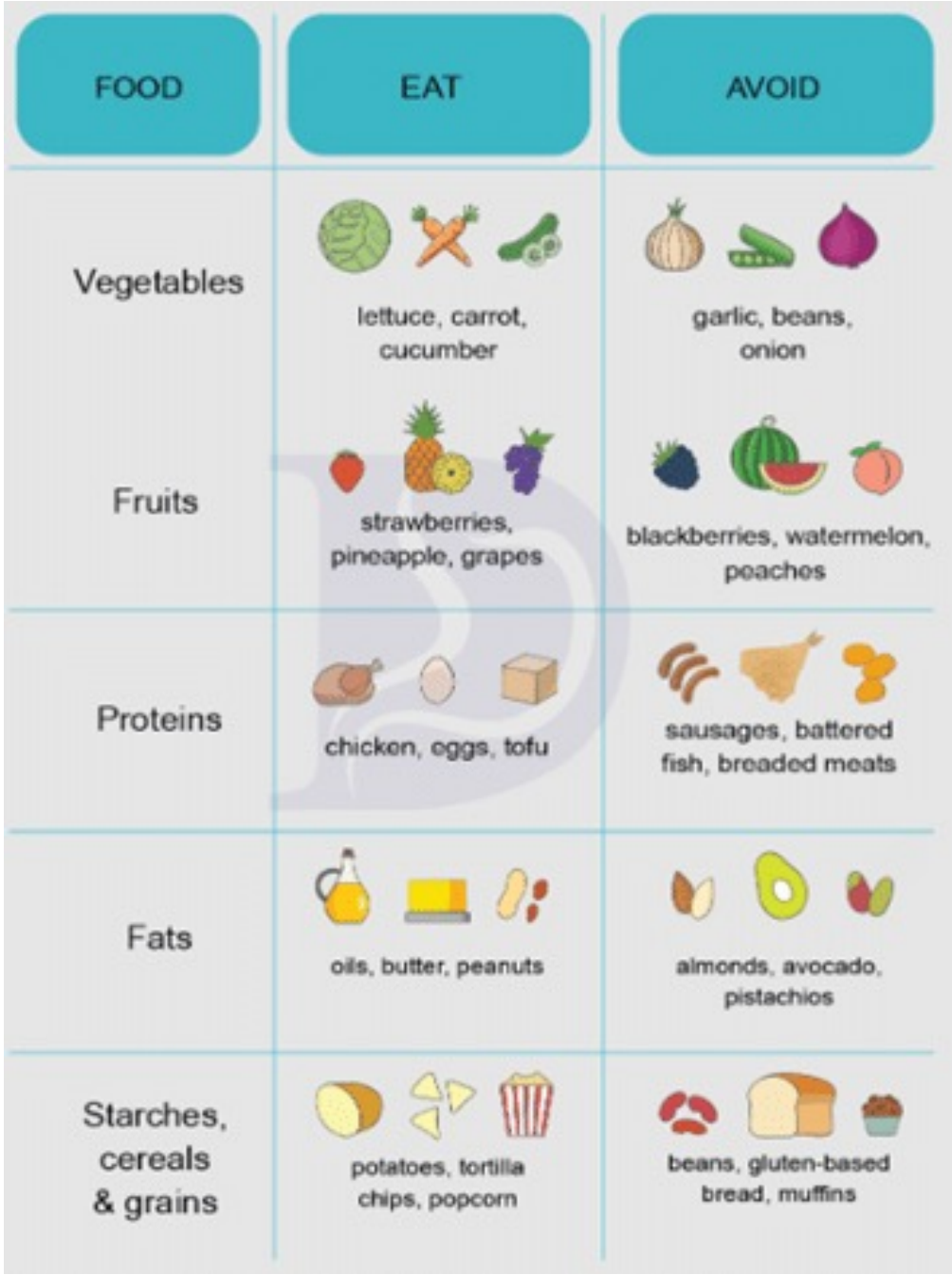
Campbell A, Rawlinson F, Gadoud A

183 How are specialist palliative care units using ranitidine in the medical management of adults with malignant bowel obstruction? A survey of UK hospices *BMJ Supportive & Palliative Care* 2020;**10:**A73.

# Nutrition

- Patient should be made NPO
- A symptom led, slow and graded Introductions
- Gradual introduction of clear fluids, full fluids to low fibre diet ( soft, minced and pureed) to normal low fibre diet

- A low fiber diet 10g perday - reduce stool bulk which may lead to reduced pain, abdominal cramps, gas or feeling of fullness




NHS Scotland (2020) Scottish palliative care guidelines. Bowel Obstruction. https://www.palliativecareguidelines.scot.nhs.uk/ guidelines/symptom-control/bowel-obstruction.aspx Accessed on: 15th July 2021

# Home Total Parenteral Nutrition ( TPN)

- HPN may be beneficial and maintain the quality of life in a very selected group of patients with MBO (level of evidence: IV; grade: D)
- Central venous access is preferred for HPN delivery (level III, grade: B).
- Prognostic criteria for survival and benefit
  - (i) histopathological type of the tumor—slow-growing and chemo-sensitive cancer
  - (ii) performance status—ECOG <2,
  - iii) no fluid retention (peripheral edema, pleural or peritoneal effusion),
  - (iv) no anemia,
  - (v) no hypoalbuminemia

- In dying patients, parenteral hydration and nutrition are unlikely to provide any benefit, treatment recommendations should be based on comfort

Naghibi M, Smith TR, Elia M (2015), Ruggeri E, Giannantonio M, Agostini F et al (2020), Dzierzanowski T, Sobocki J (2021), Chouhan J, Gupta R, Ensor J et al (2016) , Muscaritoli M, Arends J, Bachmann P et al (2021) ESPEN

# Role of Hydration?

- No specific studies assessing PH at the end of life in patients with MBO
- Parenteral hydration does not prevent or improve symptoms, such as thirst or dry mouth
- Does not increase survival, and in excessive amounts, may cause fluid overload, peripheral and pulmonary edema

- Parenteral hydration should not be initiated routinely in the last days of life

Bozzetti F (2015) Nutrition, hydration, and patient's preferences at the end of life. Support Care Cancer 23:1487–8
Raijmakers NJH, van Zuylen L, Costantini M, et al. (2011) Arti- ficial nutrition and hydration in the last week of life in cancer patients. A systematic literature review of practices and effects. Ann Oncol 22:1478–1486
Lokker ME, van der Heide A, Oldenmenger WH et al (2021) Hydration and symptoms in the last days of life. BMJ Support Palliat Care 11:335–343

# Psychosocial and Spiritual Support

- Clear communication and early palliative care referral
- Grief to inability to eat and drink
- Cosmetics, body image

- Discussion about what you can do to help the symptoms
- Goals of care discussion

Cusimano MC, Sajewycz K, Nelson M et al (2020) Supported self-management as a model for end-of-life care in the setting of malignant bowel obstruction: a qualitative study. Gynecol Oncol 157:745–753

Hoppenot C, Hlubocky FJ, Chor J et al (2020) Approach to palliative care consultation for patients with malignant bowel obstruction in gynecologic oncology: a qualitative analysis of physician perspectives. JCO Oncol Pract 16:483–489

| Medication | Dosing |
|---|---|
| Dexamethasone | IV/ SC 4 and 16 mg daily |
| Metoclopromide | IV/ SC 10mg QID |
| Haloperidol | IV/SC 0.5mg every Hourly PRN |
| Hyoscine Butylbromide | IV/SC 20mg 8 Hourly or 60mg/24H CSCI, up to 120mg/24H |
| Scopolamine Patch (hyoscine hydrobromide) | 1.5 mg TD Q72H |
| Octreotide $t_{½}$ = 1.5 hrs | 30 – 80+ mcg / hr SC / IV ( starting dose of 600-800mcg/24H) |

Hsu K, Prommer E, Murphy MC et al (2019), Currow DC, Quinn S, Agar M et al (2015) , Feuer DJ, Broadley KE (2000)Cochrane Database
Ripamonti CI, Easson AM, Gerdes H (2008) Management of malignant bowel obstruction. Eur J Cancer 44:1105–15
Goldstein , NE, Morrison RS. Evidence-Based Practice of Palliative Medicine. Philadelphia. Saunders, 2013.
Wilcock,A, Howard P, Charlesworth, s. PCF8, Palliative Care Formulary, Pharmaceutical Press, 2022.

# Take Home Messages

- Approach based on prognosis and patient values
- Prognosis is poor
- High symptoms burden with high psychosocial and spiritual impact
- Goals of Care and clear communication