Nausea and Vomiting in Palliative Care

Nausea and vomiting are common symptoms in advanced cancer affecting 50-60% patients.

Nausea-unpleasant feeling need to vomit often with autonomic symptoms such as pallor, cold sweat, salivation, tachycardia and diarrhoea.

Retching-rhythmic laboured spasmodic movements of diaphragm and abdo muscles generally in presence of nausea and often culminates in vomiting.

Vomiting-forceful expulsion gastric contents through mouth.

Pathogenesis

The Area Postrema in floor 4^{th} ventricle in brain stem contains Chemoreceptor Trigger Zone as its functional entity.

Area Postrema lies outside blood brain barrier-bathed in systemic circulation. Dopamine receptors in Area Postrema are stimulated by high concentrations of emetogenic substances e.g. morphine, urea,calcium,digoxin.

The Area Postrema also receives input from the vestibular apparatus and the vagus.

The nucleus tractus solitarus is the main central connection of the vagus and lies in deep Area Postrema. It contains greatest concentration of 5HT3-receptors in the brain stem. The emetic pattern generator is close to Area Postrema but lies fully within the blood brain barrier. It comprises a collection of motor nuclei, including the nucleus ambiguus, ventral and dorsal respiratory groups and the dorsal motor nucleus of the vagus

Causes

Important to identify most likely causes of nausea and vomiting in each patient as treatment depends on cause.

Caused by cancer

Gastroparesis
Blood in stomach
Bowel obstruction
-partial
-complete
Constipation
Hepatomegaly
Gross ascites
Raised ICP
Cough
Pain
Anxiety
Cancer toxicity
Hypercalcaemia
Hyponatraemia
Renal Failure

Related to cancer +/or debility

Cough
Infection

Caused by treatment

Radiotherapy
Chemotherapy
Drugs:
antibiotics
aspirin
carbamazepine
corticosteroids
digoxin
iron
mucolytics/expectorants
NSAIDs
oestrogens
opioids
theophylline

Concurrent causes

Functional dyspepsia
Peptic ulcer
Alcoholic gastritis
Renal Failure

Management principles

Correct reversible causes

Cough- antitussive
Gastritis-antacid, H2 receptor antagonist, proton pump inhibitor
?stop gastric irritant drugs:
antibiotcs
corticosteroids
irritant mucolytic
NSAID
Constipation-laxative
Raised ICP-corticosteroid
Hypercalcaemia- rehydrate & bisphosphonate

Non drug measures

- Calm reassuring environment away from sight or smell food
- Small snacks
- Avoid exposure to foods which precipitate nausea
- If patient household cook someone else may need to take on this role

Drug treatment

1). Logical & methodical approach.
2). Alleviate reversible causes
3). Non drug measures
4). Prescribe first line anti-emetic for most likely cause both regularly and as needed.
5). If vomiting prevents enteral drug absorption ,or patient nauseated most of time administer via SC route by continuous infusion preceded by a stat dose, or by stat injections via butterfly cannula
6) Optimize the dose of anti-emetic every 24h taking as needed in to account, and patients own rating of N&V
7). If little/no benefit after 24-48h despite optimizing the dose, is the cause right?
   - if no change to appropriate anti-emetic and optimize
   - if yes provided first line anti-emetic has been optimized add or substitute second line anti-emetic

Do not combine drugs with antagonistic actions e.g. cyclizine and metoclopramide

1/3 patients with N&V need more than one drug for satisfactory control

Consider converting to oral regime after 72 h good control via sc route

Continue anti-emetic indefinitely unless cause is self- limiting

Cause	First line	stat dose	24h range	Second line	stat dose	24h range	Adjuncts
Gastric Stasis	Metoclopramide	10-20mg	30-100mg				Antiflatulant e.g.Asilone
Gastric Irritation Drugs Radiotherapy	Metoclopramide	10-20mg	30-100mg	5HT3 antagonist	4mg	8-16mg	Proton pump inhibitor Misoprostol if NSAID induced
Bowel Obstruction NO COLIC	Metocloprmaide	10-20mg	40-100mg	Dexamethasone	8-16mg	8-16mg Sc/iv	Diamorphine sc/iv Enema Docusate
Bowel Obsrtuction + COLIC	Cyclizine	50mg	100-200mg	Haloperidol Methotrimeprazine Hyoscine Butylbromide	1.25-2.5mg 6.25-12.5mg 20mg sc	2.5-5mg 6.25-25mg 80-160mg sc	Above but consider: Dex,5HT3, Octreotide- 300-1000mcg/24h
Chemical e.g.drugs chemotherapy radiotherapy biochemical	Haloperidol	1.25-2.5mg	2.5-5mg	Methotrimeprazine	6.25-12.5mg	6.2-25mg	
Raised ICP	Dex + Cyclizine	12-16mg 50mg	12-16mg 150-200mg	Haloperidol			
Motion	cyclizine	50mg	150-200mg				

Drug types

Metoclopramide-prokinetic and dopamine antagonist

Cyclizine - antihistamine and anticholinergic

Haloperidol – Dopamine agonist

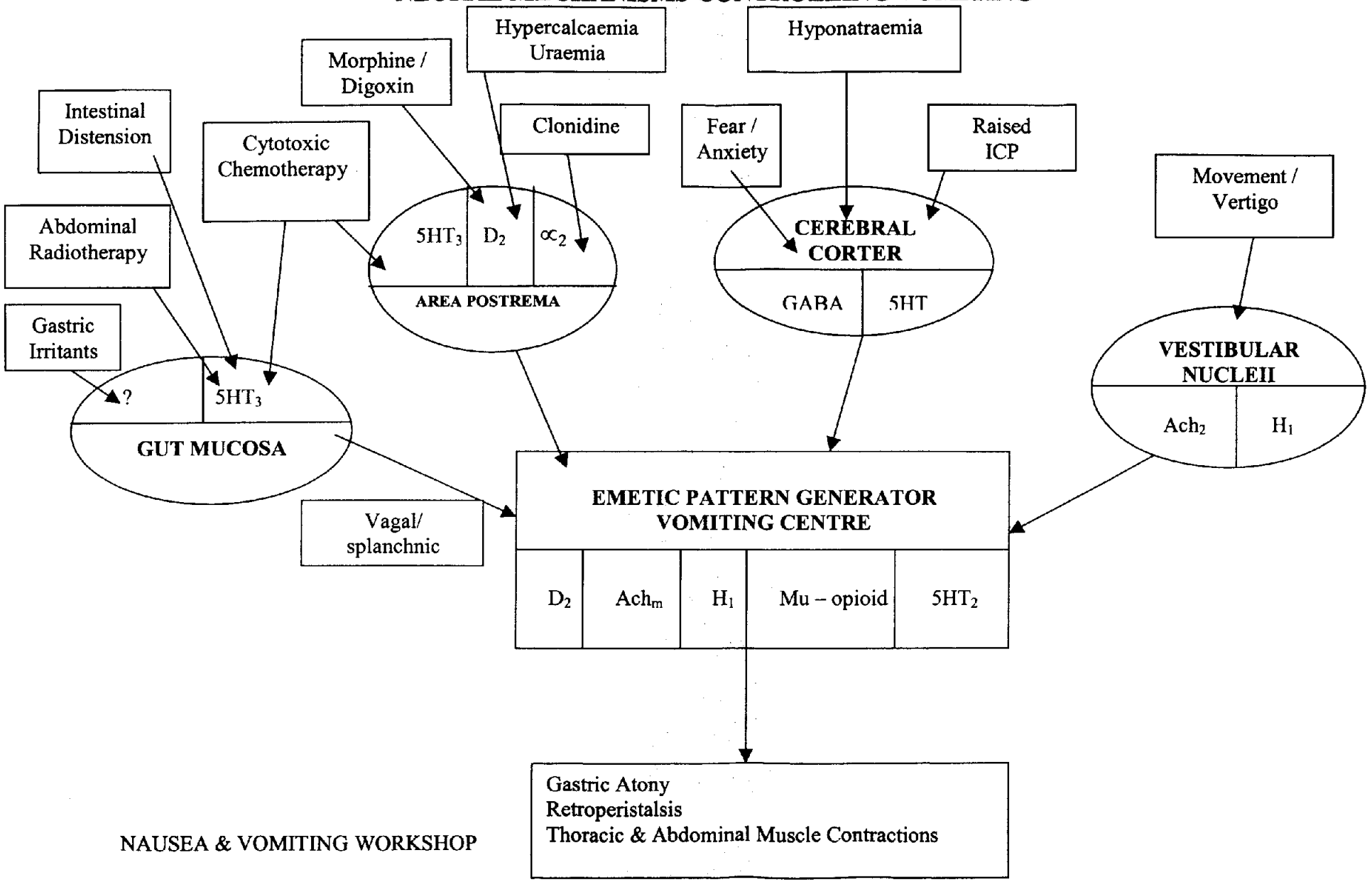
Methotrimeprazine- (substitue for cyclizine & haloperidol) Dopamine agonist, 5HT3 antagonist, antihistamine, anticholinergic

Hyoscine Butylbromide- anticholinergic

Octreotide- Somatostatin analogue

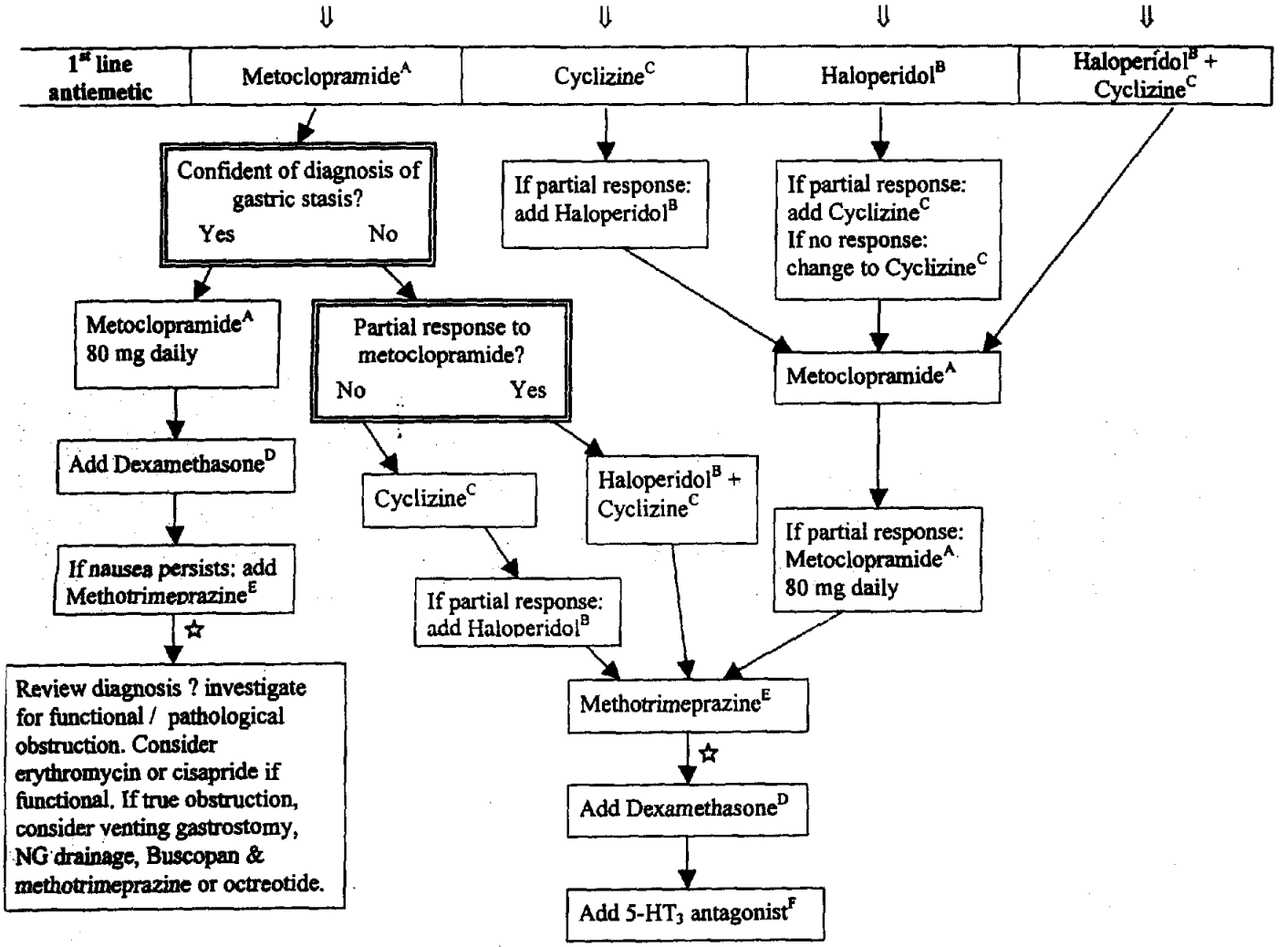
Dr Jacinta Walsh

NEURAL MECHANISMS CONTROLLING VOMITING



MANAGEMENT OF NAUSEA & VOMITING – 1. NON-OBSTRUCTIVE

Specific Diagnosis made	Gastric stasis Squashed stomach syndrome	Raised ICP GI distension (e.g. constipation) Pharyngeal irritation Motion sickness (VIIIth nerve or brainstem disease)	Drugs or metabolic, esp. Opioids Hypercalcaemia Uraemia	-
		- OR -		
Unknown or multifactorial diagnosis:	A: Vomiting at least partially relieves nausea. Retching not prominent	-	B: Nausea and retching more prominent than vomiting	Not clearly A or B



☆ If methotrimeprazine is partially effective and the patient not unacceptably drowsy, increase dose as the next step, before moving onto the next drug or combination. Methotrimeprazine – 25mg b.d. p.o. / 25mg in 24h S/C.

MANAGEMENT OF NAUSEA & VOMITING – 2. INTESTINAL OBSTRUCTION

Give drugs by S/C infusion
Use rectal suppositories or enemas if faeces in rectum
Stop stimulant laxatives unless stated below
Consider dexamethasone[D] if:

- high level obstruction (gastric outlet, duodenal etc.)
- lymphoma (may be steroid sensitive tumour)
- recent radiotherapy or chemotherapy
- recent surgery esp. to upper GI tract