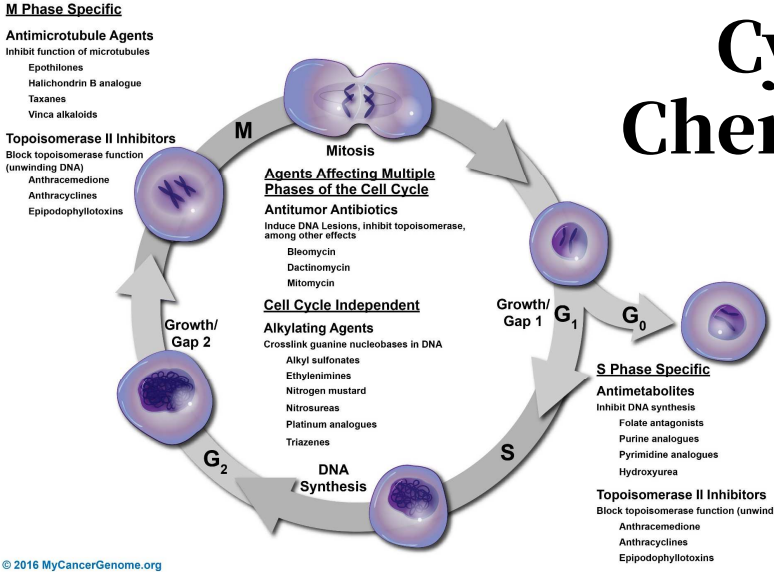
化學治療止吐藥物簡介

江佳駿
CHIACHUN CHIANG M.D.

Cytotoxic Chemotherapy



化學療法（英語：Chemotherapy），簡稱化療（Chemo），是用特殊的藥物來治療疾病，為目前治療腫瘤及某些自身免疫性疾病的主要手段之一，不過在治療中，普遍會為患者帶來明顯的噁心及嘔吐等副作用，為患者帶來不適感。化療是指應用藥物治療癌症。這些可殺滅腫瘤細胞的藥物有時被稱為細胞毒藥物。許多化療藥物是天然的，比如植物，其他則是人工合成的。

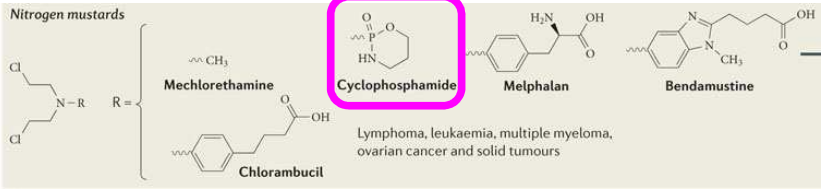
維基百科

Anthracycline (Doxorubicin) (Daunorubicin)

Docetaxel

Paclitaxel

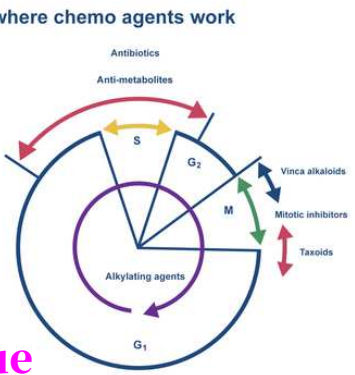
Alkylating agents



Vinca alkaloid

Stomatitis

N/V



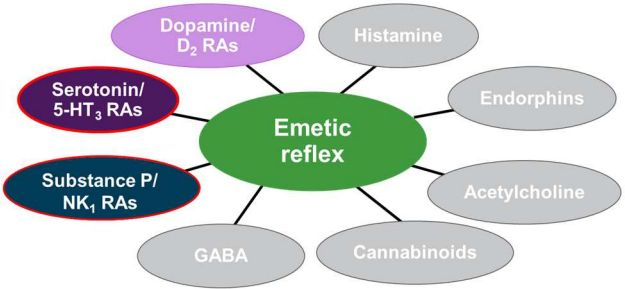
Diarrhea

Fatigue

Hair loss

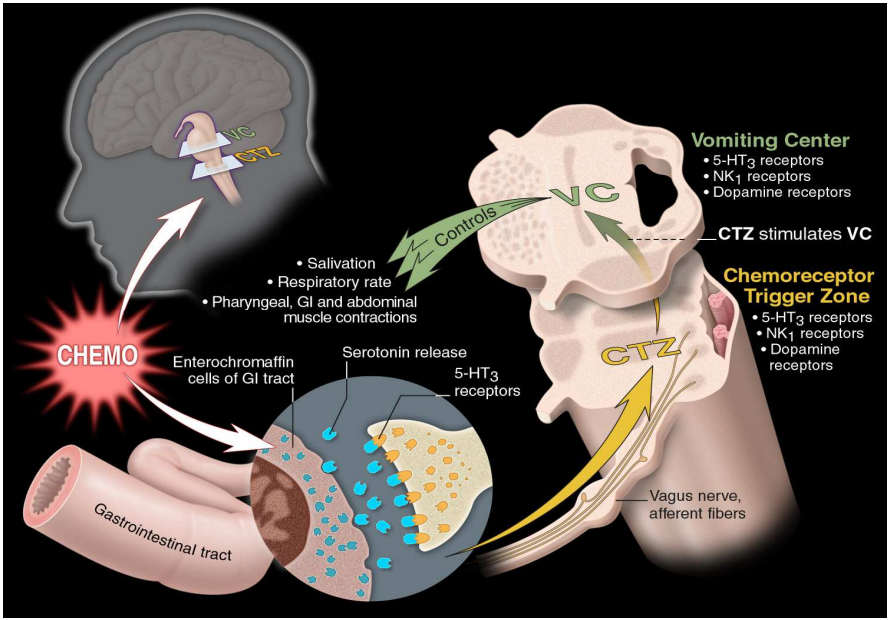
Chemotherapy-Induced Nausea and Vomiting

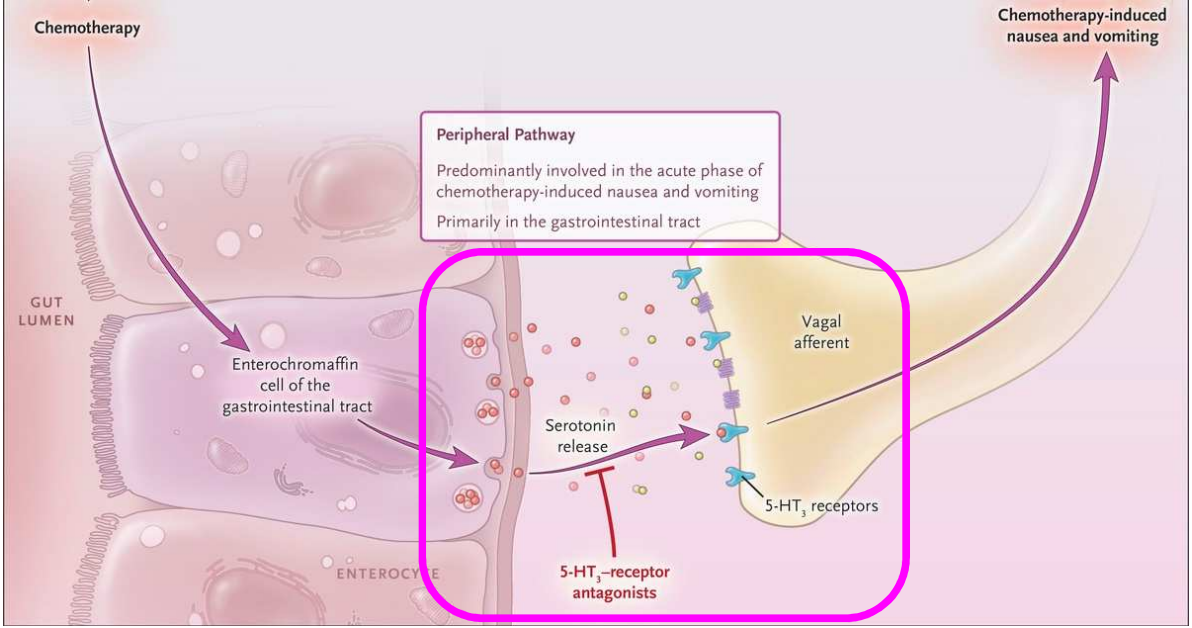
Neurotransmitters and antiemetic pathways: targeting key pathways to influence emetic control



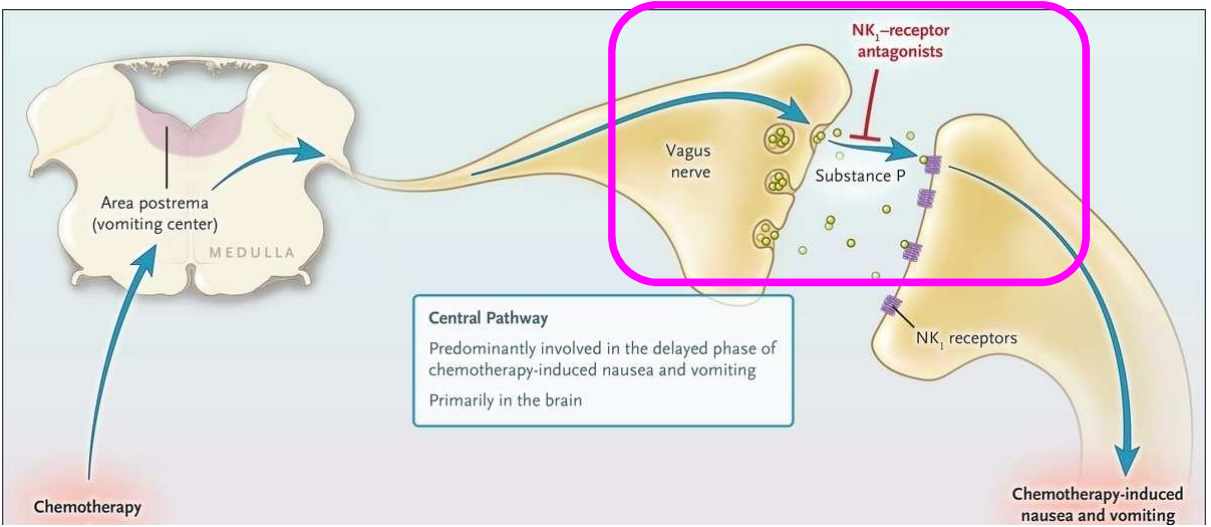
GABA, gamma-aminobutyric acid.

Adapted from: Navari RM. Drugs. 2013;73:249–262.
Frame DG. J Support Oncol. 2010 Mar-Apr;8(2 Suppl 1):5-9.
Lorusso V et al. Future Oncol. 2014 Oct 31:1-13.


VC
CTZ
Vomiting Center
• 5-HT3 receptors
• NK1 receptors
• Dopamine receptors
Controls
VC
CTZ stimulates VC
• Salivation
• Respiratory rate
• Pharyngeal, GI and abdominal muscle contractions
Chemoreceptor Trigger Zone
• 5-HT3 receptors
• NK1 receptors
• Dopamine receptors
CHEMO
Enterochromaffin cells of GI tract
Serotonin release
5-HT3 receptors
CTZ
Gastrointestinal tract
Vagus nerve, afferent fibers



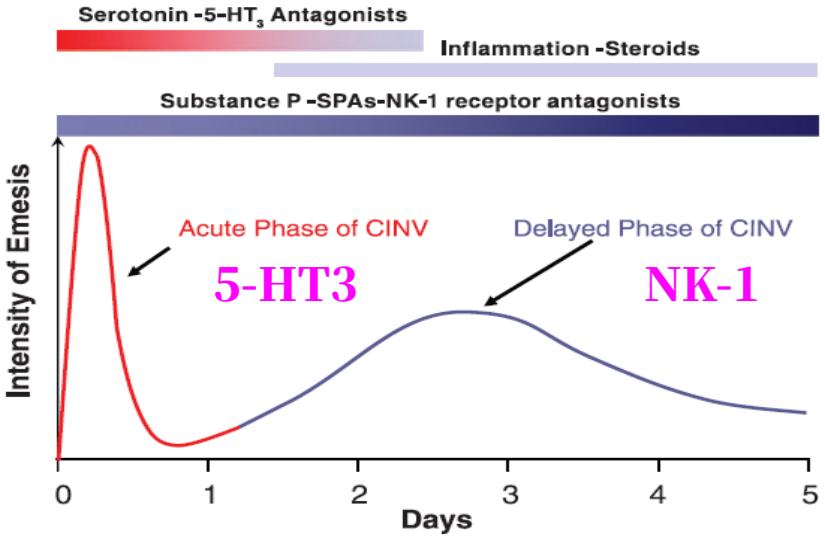
N Engl J Med 2016; 374:1356-1367


NK1–receptor antagonists
Vagus nerve
Substance P
Area postrema (vomiting center)
MEDULLA
Central Pathway
Predominantly involved in the delayed phase of chemotherapy-induced nausea and vomiting
Primarily in the brain
NK1 receptors
Chemotherapy
Chemotherapy-induced nausea and vomiting

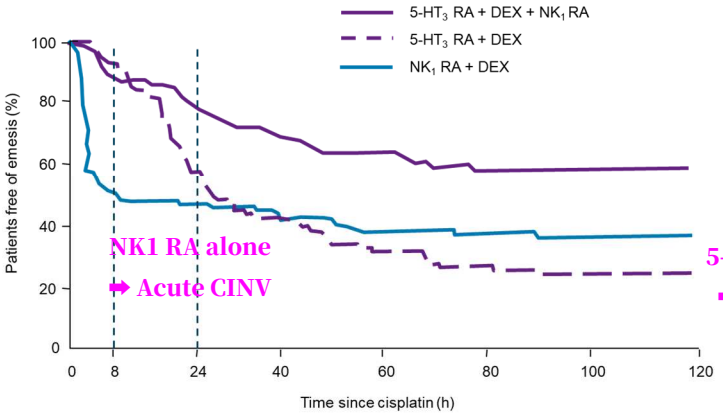
Chemotherapy-Induced Nausea and Vomiting

Table 1. Classes of Chemotherapy-Induced Nausea and Vomiting.

Classification	Definition
Acute	Occurring within the first 24 hours after initiation of chemotherapy[10]; generally peaks after 5 to 6 hours[11]
Delayed	Occurring from 24 hours to several days (days 2 to 5) after chemotherapy[12]
Breakthrough	Occurring despite appropriate prophylactic treatment[13]
Anticipatory	Occurring before a treatment as a conditioned response to the occurrence of chemotherapy-induced nausea and vomiting in previous cycles[14]
Refractory	Recurring in subsequent cycles of therapy, excluding anticipatory chemotherapy-induced nausea and vomiting[13]


Serotonin -5-HT3 Antagonists
Inflammation -Steroids
Substance P -SPAs-NK-1 receptor antagonists
Intensity of Emesis
Acute Phase of CINV
Delayed Phase of CINV
5-HT3
NK-1
0
1
2
3
4
5
Days

NK_1 RAs used in combination with 5-HT_3 RAs can better control acute and delayed CINV

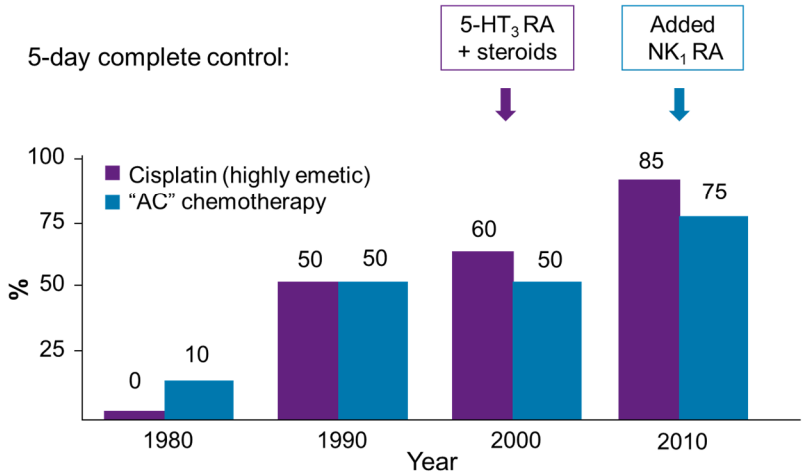


Time course of emesis following cisplatin with a 5-HT_3 RA or NK_1 RA

DEX, dexamethasone.

Adapted from Hesketh PJ, et al. Eur J Cancer. 2003;39:1074-80.

Efficacy in controlling chemotherapy-induced emesis has progressed over the past 30 years



AC, anthracycline + cyclophosphamide; RA, receptor antagonist.

Gralla R, personal communication
Discussed in Navari RM and Aapro M. N Engl J Med 2016;374:1356-67.

EMETOGENIC POTENTIAL OF PARENTERAL ANTICANCER AGENTS[a]

LEVEL	AGENT		
High emetic risk (>90% frequency of emesis)[b,c]	• AC combination defined as any chemotherapy regimen that contains an anthracycline and cyclophosphamide • Carboplatin AUC ≥4	• Carmustine >250 mg/m² • Cisplatin • Cyclophosphamide >1,500 mg/m² • Dacarbazine • Doxorubicin ≥60 mg/m²	• Epirubicin >90 mg/m² • Ifosfamide ≥2 g/m² per dose • Mechlorethamine • Streptozocin
Moderate emetic risk (>30%–90% frequency of emesis)[b,c]	• Aldesleukin >12–15 million IU/m² • Amifostine >300 mg/m² • Arsenic trioxide • Azacitidine • Bendamustine • Busulfan • Carboplatin AUC <4[d] • Carmustine[d] ≤250 mg/m² • Clofarabine • Cyclophosphamide ≤1500 mg/m²[d] • Cytarabine >200 mg/m²	• Dactinomycin[d] • Daunorubicin[d] • Dual-drug liposomal encapsulation of cytarabine and daunorubicin • Dinutuximab • Doxorubicin[d] <60 mg/m² • Epirubicin[d] ≤90 mg/m² • Idarubicin • Ifosfamide[d] <2 g/m² per dose • Interferon alfa ≥10 million IU/m² • Irinotecan[d]	• Irinotecan (liposomal) • Melphalan • Methotrexate[d] ≥250 mg/m² • Oxaliplatin[d] • Temozolomide • Trabectedin[d]

Adapted with permission from:
Hesketh PJ, Kris MG, Grunberg SM, et al. Proposal for classifying the acute emetogenicity of cancer chemotherapy. J Clin Oncol 1997;15:103-109.
Grunberg SM, Warr D, Gralla RJ, et al. Evaluation of new antiemetic agents and definition of antineoplastic agent emetogenicity--state of the art. Support Care Cancer 2011;19:S43-47.

HIGH EMETIC RISK PARENTERAL CHEMOTHERAPY — ACUTE AND DELAYED EMESIS PREVENTION[h,i,j,k,l]

DAY 1: Select option A, B, or C (order does not imply preference) All are category 1, start before chemotherapy:[j]	DAYS 2, 3, 4:
A • NK1 RA (choose one): ▸ Aprepitant 125 mg PO once ▸ Aprepitant injectable emulsion 130 mg IV once[m] ▸ Fosaprepitant 150 mg IV once ▸ Netupitant 300 mg / palonosetron 0.5 mg (available as fixed combination product only) PO once[n] ▸ Fosnetupitant 235 mg / palonosetron 0.25 mg (available as fixed combination product only) IV once[n] ▸ Rolapitant 180 mg PO once[o] • 5-HT3 RA (choose one):[p,q] ▸ Dolasetron 100 mg PO once ▸ Granisetron 10 mg SQ once,[r] or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to first dose of chemotherapy. ▸ Ondansetron 16–24 mg PO once, or 8–16 mg IV once ▸ Palonosetron 0.25 mg IV once • Dexamethasone 12 mg PO/IV once[s,t]	A • Aprepitant 80 mg PO daily on days 2, 3 (if aprepitant PO used on day 1) • Dexamethasone 8 mg[s,t] PO/IV daily on days 2, 3, 4

健保規範 5HT3 antagonists

7.2.1.Serotonin antagonists（如ondansetron、granisetron、tropisetron、ramosetron、palonosetron等）(93/2/1、93/9/1、98/9/1、99/5/1、101/4/1、102/9/1)

1.血液幹細胞移植患者接受高劑量化學治療時。

2.惡性腫瘤患者及風濕免疫疾病（如紅斑性狼瘡、類風濕性關節炎、貝西氏症、皮肌炎/多發性肌炎、硬皮症、血管炎等）患者接受化學治療時，依下述情形使用：(98/9/1、99/5/1)

(1)前述患者處方高致吐性藥品，可預防性使用ondansetron 8~32 mg、granisetron 1~3 mg、tropisetron 5 mg、ramosetron 0.3 mg一日劑量。必要時其使用以不得超過五日為原則。若發生嚴重延遲性嘔吐，得直接使用，每療程使用不得超過五日為原則。

(2)前述患者處方中致吐性藥品，可預防性使用ondansetron 8~32 mg、granisetron 1~3 mg、tropisetron 5 mg、ramosetron 0.3 mg一日劑量。若發生嚴重延遲性嘔吐，使用dexamethasone 及 metoclopramide 無效之病例，每療程使用以不得超過五日為原則。病歷需有使用dexamethasone及 metoclopramide 無效之記錄。

(3)血液腫瘤病患接受化學治療，需使用中、高致吐性抗癌藥品時，得依患者接受抗癌藥品實際使用天數使用本類製劑。(93/9/1)

(4)Palonosetron限於中、高致吐化學治療之前使用。(99/5/1)

3.接受腹部放射照射之癌症病人，得依下列規範使用ondansetron、granisetron等藥品：(93/9/1)

(1)Total body or half body irradiation

(2)Pelvis or upper abdominal region of single irradiation dose> 6 Gy

(3)腹部放射治療中產生嘔吐，經使用dexamethasone、metoclopramide或prochlorperazine等傳統止吐劑無效，仍發生嚴重嘔吐之患者。

4.穿皮貼片劑限用於無法口服之病患。(102/9/1)

健保規範 NK-1 antagonists

7.2.2. Neurokinin-1 receptor antagonist （如aprepitant、fosaprepitant）(94/10/1、101/02/1、101/4/1、101/12/1、102/8/1)

1.與其他止吐藥劑併用，以防止由高致吐性癌症化療藥物在初次或重覆使用時所引起的急性或延遲性噁心與嘔吐。(101/2/1)

2.口服製劑限用三天，每日限用一顆。注射製劑限於化療第一天使用。(101/4/1、101/12/1)

3.本品除第一天外，不得併用5-HT_3之藥物。(101/4/1)

4.若於化療第四天（含）後仍有Grade 2 以上之嘔吐，則於第四天及第五天可依照7.2.1.規範給予serotonin antagonist。(102/8/1)

備註：

靜脈注射癌症化療藥品之致吐性風險與劑量標準，依NCCN (National Comprehensive Cancer Network)最新版治療指引內容。(101/02/1、101/4/1、107/5/1)

健保規範 Akynzeo(NEPA)

7.2.3.含PAlonosetron及NEtupitant之複方製劑(如Akynzeo)(108/1/1)

1.限用於防止由高致吐性癌症化療藥物在初次或重覆使用時所引起的急性或延遲性噁心與嘔吐。

2.每次化療限使用1粒。

3.自使用本案藥品之日起3天內不得併用其他serotonin antagonist或neurokinin-1 receptor antagonist止吐劑。

Olanzapine-containing regimens for high risk parental chemotherapy

B • Olanzapine 5–10 mg PO once[u] • Palonosetron 0.25 mg IV once • Dexamethasone 12 mg PO/IV once[s,t]	**B** • Olanzapine 5–10 mg PO daily on days 2, 3, 4[u]
C • Olanzapine 5–10 mg PO once[u,v,w] • NK1 RA (choose one): ‣ Aprepitant 125 mg PO once ‣ Aprepitant injectable emulsion 130 mg IV once[m] ‣ Fosaprepitant 150 mg IV once ‣ Netupitant 300 mg / palonosetron 0.5 mg (available as fixed combination product only) PO once[n] ‣ Fosnetupitant 235 mg / palonosetron 0.25 mg (available as fixed combination product only) IV once[n] ‣ Rolapitant 180 mg PO once[o] • 5-HT3 RA (choose one):[p,q] ‣ Dolasetron 100 mg PO once ‣ Granisetron 10 mg SQ once,[r] or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to first dose of chemotherapy. ‣ Ondansetron 16–24 mg PO once, or 8–16 mg IV once ‣ Palonosetron 0.25 mg IV once • Dexamethasone 12 mg PO/IV once[s,t]	**C** • Olanzapine 5–10 mg PO daily on days 2, 3, 4[u] • Aprepitant 80 mg PO daily on days 2, 3 (if aprepitant PO used on day 1) • Dexamethasone 8 mg[s,t] PO/IV daily on days 2, 3, 4

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

Footnotes

MODERATE EMETIC RISK PARENTERAL CHEMOTHERAPY — ACUTE AND DELAYED EMESIS PREVENTION[h,i,j,k,l]

DAY 1: Select option D, E, or F (order does not imply preference). All are category 1, start before chemotherapy:[j]	DAYS 2, 3:
D • 5-HT3 RA (choose one): ▸ Dolasetron 100 mg PO once ▸ Granisetron 10 mg SQ once[r] (preferred), or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to first dose of chemotherapy. ▸ Ondansetron 16–24 mg PO once, or 8–16 mg IV once ▸ Palonosetron 0.25 mg IV once (preferred) • Dexamethasone 12 mg PO/IV once[s,t]	**D** • Dexamethasone 8 mg[s,t] PO/IV daily on days 2, 3 OR • 5-HT3 RA monotherapy[x]: ▸ Granisetron 1–2 mg (total dose) PO daily or 0.01 mg/kg (max 1 mg) IV daily on days 2 and 3 ▸ Ondansetron 8 mg PO twice daily or 16 mg PO daily or 8–16 mg IV daily on days 2, 3 ▸ Dolasetron 100 mg PO daily on days 2, 3
E • Olanzapine 5–10 mg PO once[u] • Palonosetron 0.25 mg IV once • Dexamethasone 12 mg PO/IV once[s,t]	**E** • Olanzapine 5–10 mg PO daily on days 2, 3[u]
F Note: An NK1 RA should be added (to dexamethasone and a 5-HT3 RA regimen) for select patients with additional risk factors or previous treatment failure with a corticosteroid + 5-HT3 RA alone. • NK1 RA (choose one): ▸ Aprepitant 125 mg PO once ▸ Aprepitant injectable emulsion 130 mg IV once[m] ▸ Fosaprepitant 150 mg IV once[n] ▸ Netupitant 300 mg / palonosetron 0.5 mg (available as fixed combination product only) PO once[n] ▸ Fosnetupitant 235 mg / palonosetron 0.25 mg (available as fixed combination product only) IV once[n] ▸ Rolapitant 180 mg PO once[o] • 5-HT3 RA (choose one):[p,q] ▸ Dolasetron 100 mg PO once ▸ Granisetron 10 mg SQ once,[r] or 2 mg PO once, or 0.01 mg/kg (max 1 mg) IV once, or 3.1 mg/24-h transdermal patch applied 24–48 h prior to first dose of chemotherapy. ▸ Ondansetron 16–24 mg PO once, or 8–16 mg IV once ▸ Palonosetron 0.25 mg IV once • Dexamethasone 12 mg PO/IV once[s,t]	**F** • Aprepitant 80 mg PO daily on days 2, 3 (if aprepitant PO used on day 1) • ± Dexamethasone 8 mg[s,t] PO/IV daily on days 2, 3

Palonosetron was also found to be superior to granisetron for the prevention of chemotherapy-induced emesis in patients treated with highly or moderately emetogenic chemotherapy

Lancet Oncol 2009; 10: 115-24.

5-HT$_3$ RAs	Binding affinity pK$_i$ (nM)	Half life (hrs)
Palonosetron[1]	10.45	40
Granisetron[2]	8.91	9.0
Ondansetron[1]	8.39	5.5
Ramosetron[3]	8.5 - 9.0	4.3 - 9.0

The potential for QTc prolongation has been identified as a safety concern associated with the first-generation 5-HT3–receptor antagonists.

Support Care Cancer 2014; 22:469-77.

[a] pIC_{50}.
IC_{50}, half-maximal inhibitory concentration.

1. Wong EHF, et al. Br J Pharmacol. 1995;114:851-9.
2. Kytril SmPC 2017
3. Muchatuta NA, Paech MJ. Ther Clin Risk Manag. 2009;5:21–34. [PMC free article] [PubMed]

健保規範 5HT3 antagonists

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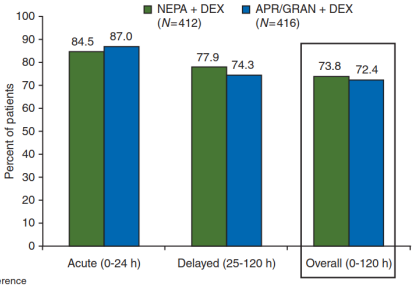
Annals of Oncology 29: 452–458, 2018
doi:10.1093/annonc/mdx698
Published online 28 October 2017

ORIGINAL ARTICLE

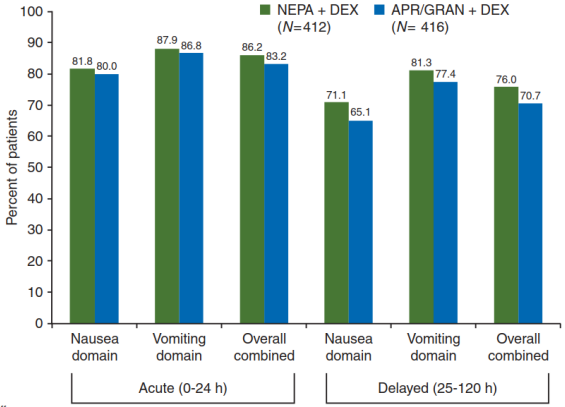
A randomized phase III study evaluating the efficacy of single-dose NEPA, a fixed antiemetic combination of netupitant and palonosetron, versus an aprepitant regimen for prevention of chemotherapy-induced nausea and vomiting (CINV) in patients receiving highly emetogenic chemotherapy (HEC)



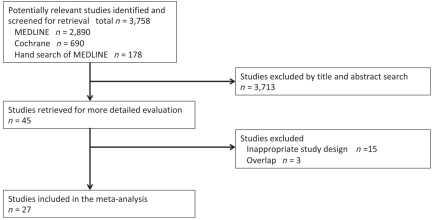
Risk difference NEPA - APR/GRAN (95% CI):	−2.5% (−7.2%, 2.3%)	3.7% (−2.1%, 9.5%)	1.5% (−4.5%, 7.5%)

Non-inferiority margin set at −10%

NEPA ≒ APR/GRAN



Risk difference NEPA - APR/GRAN (95% CI)	2.0% (−3.3%, 7.3%)	1.4% (−3.1%, 5.9%)	3.3% (−1.6%, 8.1%)	6.5% (0.2%, 12.8%)	4.5% (−1.0%, 9.9%)	5.8% (−0.1%, 11.8%)



The Oncologist®

Symptom Management and Supportive Care

Effectiveness of Antiemetic Regimens for Highly Emetogenic Chemotherapy-Induced Nausea and Vomiting: A Systematic Review and Network Meta-Analysis

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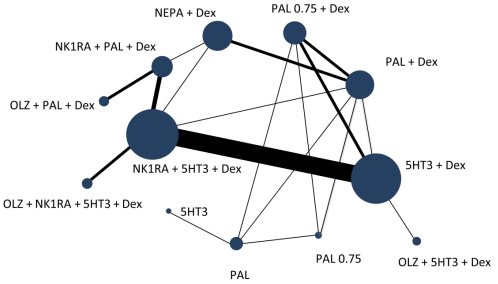
Disclosures of potential conflicts of interest may be found at the end of this article.

Table 3. Indirect comparison of overall complete response rates

Antiemetic regimen	5HT3 + Dex	5HT3	PAL	PAL + Dex	PAL0.75	PAL0.75 + Dex	NK1RA + 5HT3 + Dex	NK1RA + PAL + Dex	NEPA + Dex	OLZ + 5HT3 + Dex	OLZ + PAL + Dex
5HT3 + Dex											
5HT3	0.76 [0.27–1.9]										
PAL	1.14 [0.73–1.78]	1.49 [0.64–3.66]									
PAL + Dex	**1.44 [1.08–1.92]**	1.88 [0.77–5.09]	1.26 [0.85–1.86]								
PAL0.75	0.84 [0.47–1.51]	1.1 [0.41–3.18]	0.73 [0.43–1.26]	**0.58 [0.34–0.99]**							
PAL0.75 + Dex	**1.51 [1.19–1.9]**	1.97 [0.79–5.38]	1.32 [0.86–2.02]	1.04 [0.78–1.39]	**1.79 [1.01–3.12]**						
NK1RA + 5HT3 + Dex	**1.75 [1.56–1.97]**	**2.29 [0.92–6.34]**	**1.53 [0.97–2.4]**	1.21 [0.91–1.62]	**2.07 [1.15–3.69]**	1.15 [0.9–1.5]					
NK1RA + PAL + Dex	**2.25 [1.66–3.03]**	**2.93 [1.14–8.34]**	**1.96 [1.17–3.25]**	**1.55 [1.06–2.23]**	**2.65 [1.4–4.85]**	**1.48 [1.02–2.14]**	**1.27 [0.96–1.69]**				
NEPA + Dex	**2.35 [1.71–3.26]**	**3.06 [1.22–8.62]**	**2.04 [1.31–3.24]**	**1.62 [1.27–2.1]**	**2.77 [1.56–4.9]**	**1.54 [1.08–2.21]**	**1.33 [0.97–1.84]**	1.04 [0.73–1.5]			
OLZ + 5HT3 + Dex	**2.77 [1.49–5.31]**	**3.61 [1.16–11.63]**	**2.41 [1.11–5.34]**	**1.91 [0.96–3.9]**	**3.27 [1.37–7.65]**	**1.82 [0.94–3.68]**	1.57 [0.83–3.05]	1.23 [0.61–2.52]	1.17 [0.57–2.41]		
OLZ + PAL + Dex	**2.48 [1.27–4.45]**	**3.24 [1.08–9.95]**	**2.16 [1.03–4.42]**	1.71 [0.88–3.19]	**2.93 [1.29–6.36]**	1.63 [0.79–3.08]	1.41 [0.73–2.51]	1.1 [0.62–1.84]	1.05 [0.55–1.96]	0.89 [0.36–2.13]	
OLZ + NK1RA + 5HT3 + Dex	**4.88 [3.02–7.92]**	**6.37 [2.31–19.08]**	**4.26 [2.23–8.27]**	**3.37 [1.93–5.94]**	**5.77 [2.71–12.02]**	**3.22 [1.92–5.58]**	**2.77 [1.72–4.44]**	**2.17 [1.25–3.75]**	**2.07 [1.18–3.69]**	1.76 [0.78–3.87]	**1.96 [0.93–4.34]**

Efficacy of 12 antiemetic regimens is presented as the odds ratio of the overall complete response rates. Results are the odds ratios of the row-defining treatment against the column-defining treatment, accompanied by 95% credibility intervals. Odds ratios over 1 suggest that the row-defining treatment is more efficient. Significant results are in bold. There was no statistically significant inconsistency (Wald-like test: $\chi 2 = 3.962$, $p = .555$).
Abbreviations: 5HT3, serotonin receptor antagonist; Dex, dexamethasone; NEPA, oral combination of netupitant and palonosetron; NK1RA, Nk-1 receptor antagonist; OLZ, olanzapine; PAL, palonosetron; PAL0.75, palonosetron at 0.75 mg.



A regimen containing NEPA was more effective in producing CR than conventional regimens without NEPA or olanzapine.

olanzapine-containing regimens were the most effective in producing CR

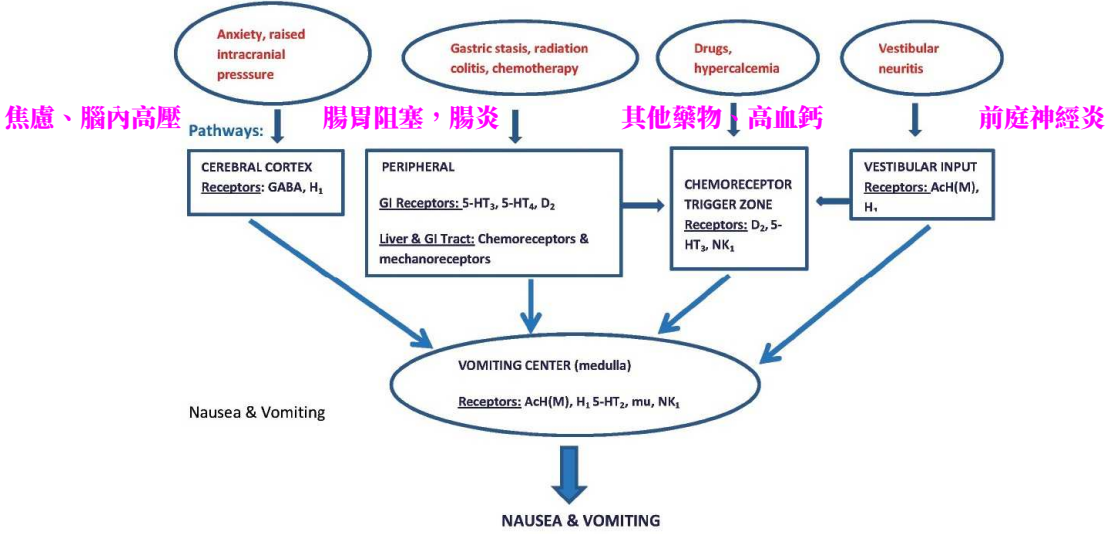
	5HT3+Dex ex	NK1RA+5HT3+Dex	NK1RA+PAL+Dex	NEPA+Dex	OLZ+5HT3+Dex	OLZ+PAL+Dex	OLZ+NK1RA+5HT3+Dex
Overall CR	0.16	0.55	0.72	0.75	0.81	0.76	0.99
Acute CR	0.32	0.66	0.71	0.59	0.78	0.88	0.97
Delayed CR	0.16	0.55	0.74	0.65	0.92	0.84	0.9

SUCRA
0.75
0.50
0.25

Oncologist. 2019 Jun;24(6):e347-e357


Breakthrough
CINV

化療致吐以外的原因應優先解決



BREAKTHROUGH TREATMENT FOR CHEMOTHERAPY-INDUCED NAUSEA/VOMITING[i,dd]

The general principle of breakthrough treatment is to add one agent from a different drug class to the current regimen. (order does not imply preference)

- Atypical antipsychotic:[l]
  - Olanzapine 5–10 mg PO daily (category 1)[ee,ff]
- Benzodiazepine:
  - Lorazepam 0.5–2 mg PO/SL/IV every 6 h[ff]
- Cannabinoid:[l]
  - Dronabinol capsules 5–10 mg, or dronabinol oral solution 2.1–4.2 mg/m², PO 3–4 times daily[gg]
  - Nabilone 1–2 mg PO BID
- Other:
  - Haloperidol 0.5–2 mg PO/IV every 4–6 h[l]
  - Metoclopramide 10–20 mg PO/IV every 4–6 h[l]
  - Scopolamine 1.5 mg transdermal patch 1 patch every 72 h
- Phenothiazine:[l]
  - Prochlorperazine 25 mg supp PR every 12 h or 10 mg PO/IV every 6 h[l]
  - Promethazine 25 mg supp PR every 6 h or 12.5–25 mg PO every 4–6 h[j]
- 5-HT3 RA:[l]
  - Dolasetron 100 mg PO daily
  - Granisetron 1–2 mg PO daily or 1 mg PO BID or 0.01 mg/kg (maximum 1 mg) IV daily or 3.1 mg/24-h transdermal patch every 7 days
  - Ondansetron 16–24 mg PO daily or 8–16 mg IV
- Corticosteroid:[l]
  - Dexamethasone 12 mg PO/IV daily

Any nausea/vomiting

EPS, QT prolongation, dystonic reaction, falls, orthostatic hypotension, excessive sedation

Atypical antipsychotic

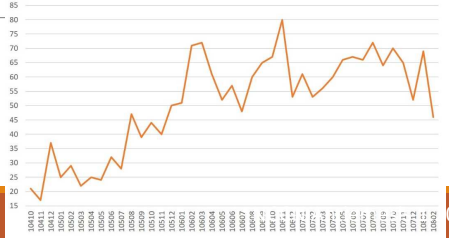
- Olanzapine:
  - Use caution when prescribing olanzapine with metoclopramide or haloperidol, as excessive dopamine blockade can increase the risk of extrapyramidal symptoms (EPS). Use of intermittent phenothiazine antiemetics (prochlorperazine or promethazine) for breakthrough CINV was safe in randomized clinical trials investigating the use of olanzapine but should be used with caution.
  - Olanzapine may increase the risk of developing prolongation of the QT interval of the ECG, when used in combination with other QT-prolonging agents.[a]
  - Intramuscular olanzapine use with concomitant parenteral benzodiazepine use is contraindicated. Toxicity may occur with this combination regardless of the route of administration. For olanzapine-containing regimens, use only PO lorazepam if needed.
  - Monitor for dystonic reactions[b]
  - CNS depression; use olanzapine with caution in patients at risk for falls (eg, elderly, debilitated, frail) or at risk for orthostatic hypotension.
- Clinical pearl: Consider a dose of 5 mg if the previously administered 10 mg dose caused excessive sedation. Data suggest that sedation is most notable on day 2 and improves over time.

EMETOGENIC POTENTIAL OF ORAL ANTICANCER AGENTS[a]

LEVEL	AGENT			
Moderate to high emetic risk[b,z] (≥30% frequency of emesis)	• Altretamine • Busulfan (≥4 mg/d) • Ceritinib • Crizotinib • Cyclophosphamide (≥100 mg/m²/d)	• Dabrafenib • Enasidenib • Estramustine • Etoposide • Lenvatinib • Lomustine (single day)	• Midostaurin • Mitotane • Niraparib • Olaparib • Procarbazine • Rucaparib	• Temozolomide (>75 mg/m²/d) • Trifluridine/tipiracil
Minimal to low emetic risk[b] (<30% frequency of emesis)	• Abemaciclib • Acalabrutinib • Afatinib • Alectinib • Axitinib • Binimetinib • Bexarotene • Brigatinib • Bosutinib • Busulfan (<4 mg/d) • Cabozantinib • Capecitabine • Chlorambucil • Cobimetinib • Cyclophosphamide (<100 mg/m²/d) • Dacomitinib • Dasatinib • Duvelisib	• Encorafenib • Erlotinib • Everolimus • Fludarabine • Gefitinib • Gilteritinib • Glasdegib • Hydroxyurea • Ibrutinib • Idelalisib • Imatinib • Ixazomib • Ivosidenib • Lapatinib • Larotrectinib • Lenalidomide • Lorlatinib • Melphalan • Mercaptopurine	• Methotrexate • Nilotinib • Neratinib • Osimertinib • Palbociclib • Panobinostat • Pazopanib • Pomalidomide • Ponatinib • Regorafenib • Ribociclib • Ruxolitinib • Sonidegib • Sorafenib • Sunitinib • Talazoparib tosylate • Temozolomide (≤75 mg/m²/d[aa] • Thalidomide	• Thioguanine • Topotecan • Trametinib • Tretinoin • Vandetanib • Vemurafenib • Venetoclax • Vismodegib • Vorinostat

Akynzeo®
netupitant/palonosetron

每月化療人次成長趨勢 (人次)



健保價2019年1月1日生效
建議給付價為: 1,904 元 (目前Aloxi + 3顆Emend 療程健保價為: 2,791 元)
Single fixed dose capsule , 兩種機轉(5-HT3RA + NK1RA)
預防噁心與嘔吐療效佳(acute, delay, overall), 且效果能持續多次化療cycle
副作用低, 安全性高
使用方式便利: 化療前一顆口服, 便可預防整個化療cycle (Day1~5)的噁心與嘔吐

諸位會員同仁：

近年來，國際間日益重視緩和治療對於癌症病患照護的重要性，美國臨床腫瘤學會（The American Society of Clinical Oncology，ASCO）明言建議癌症病人應及早接受早期緩和療護，更是讓本會一向貫徹之信念:透過早期緩和療護對於癌症病人之存活延長與生活品質提升獲得認同。

…

未來推動方向：

1.創建策略聯盟夥伴-邀請癌症專業團隊，一同推行早期緩和療護普及化，讓更多病人受惠。

2.促進緩和療護學術研究交流-期已開辦專業學術研究徵選，讓更多在地專業緩和照護交流與相互學習。

3.早期緩和療護專業具象化-繼續發展緩和療護專業工具，提供第一線醫護人員使用，得以更有效率方式來照護病人。

未來任務艱鉅，希冀各位前輩繼續支持本會未來發展，給予本會指正與提攜。最後祝福各位會員身體健康、萬事如意、平安幸福快樂。

台灣癌症安寧緩和醫學會

理事長 何景良

癌症病人 ⟷ 高品質的抗癌治療

高品質的緩和療護(止痛、止吐、癌疲憊、惡病質、心理……)

腫瘤內科

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謝謝參與
歡迎指教

Thank You for you attention
Your comments are very welcome