Antiemetic medication for prevention and treatment of chemotherapy induced nausea and vomiting in childhood

A Cochrane Systematic Review

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Introduction

Nausea and vomiting has continued to be a problem for children undergoing treatment for malignancies[1]. Current practices were often underpinned by personal preferences and experiences. **But what is the optimal paediatric dosing and scheduling of antiemtics?**

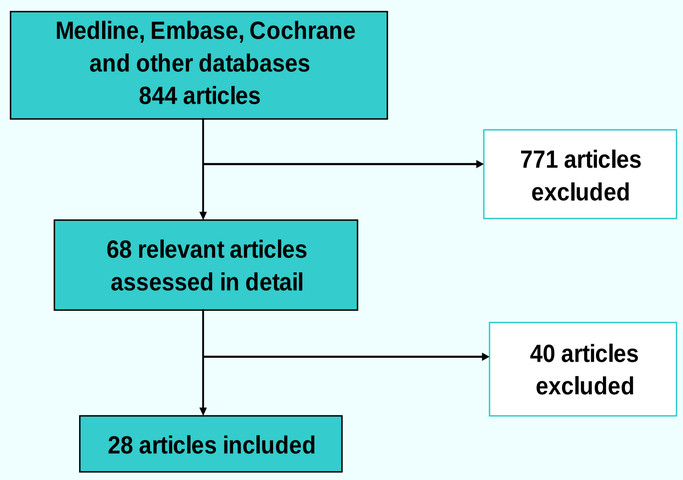
Methods

A literature search of Cochrane Library, Ovid Medline, Embase, DARE,LILACS databases, trial registries and conferences including ASCO and SIOP was undertaken. Reference lists from the selected articles were reviewed and local experts in the field contacted. The search strategy has been detailed opposite. Studies were considered if they were randomised controlled trials investigating the use of antiemetics in children who have experienced chemotherapy induced nausea and vomiting.

References of any identified systematic reviews were scoured and personal communication with the authors of relevant trials was initiated to request further information on published, unpublished or ongoing studies.

Search Strategy

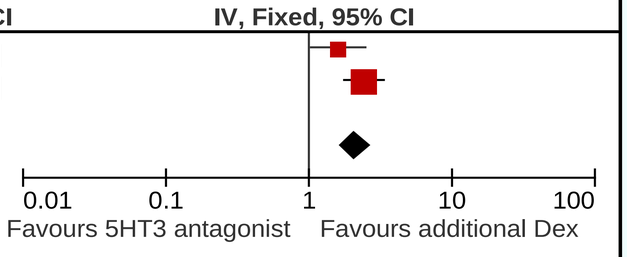
The keywords used for the search included the childhood filter strategy promoted by the Cochrane Childhood Cancer Group, a sensitive trials filter, keywords related to nausea and vomiting, a cancer filter and specific antiemetics[2].



Analysis 1.1

Study or Subgroup	log[Risk Ratio]	SE	Additional Dexamethasone Total	5HT3 antagonist alone Total	Weight	Risk Ratio IV, Fixed, 95% CI
Hirota 1993	0.470004	0.223607	20	20	34.8%	1.60 [1.03, 2.48]
Alvarez 1995	0.887303	0.163299	30	30	65.2%	2.43 [1.76, 3.34]
Total (95% CI)			**50**	**50**	**100.0%**	**2.10 [1.62, 2.72]**

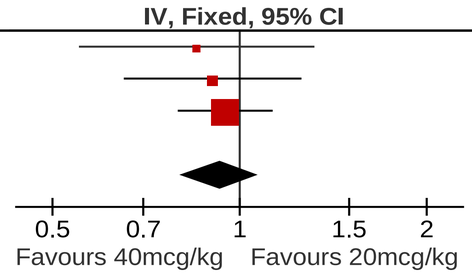
Heterogeneity: Chi² = 2.27, df = 1 (P = 0.13); I² = 56%
Test for overall effect: Z = 5.63 (P < 0.00001)



Analysis 2.1

Study or Subgroup	log[Risk Ratio]	SE	Granisitron 20mcg/kg Total	Granisitron 40mcg/kg Total	Weight	Risk Ratio IV, Fixed, 95% CI
Komada 1999	-0.15906	0.220479	36	36	11.0%	0.85 [0.55, 1.31]
Tsuchida 1999	-0.09995	0.165879	44	43	19.5%	0.90 [0.65, 1.25]
Mabro 2000	-0.05345	0.087879	143	151	69.5%	0.95 [0.80, 1.13]
Total (95% CI)			**223**	**230**	**100.0%**	**0.93 [0.80, 1.07]**

Heterogeneity: Chi² = 0.23, df = 2 (P = 0.89); I² = 0%
Test for overall effect: Z = 1.01 (P = 0.31)



Results

A total of 844 potentially useful individual articles were identified, but only 28 studies were eligible for inclusion. These studies examined a wide range of different pharmacological antiemetics, using different doses and comparators, and reported a variety of outcomes.

The majority of quantitative data reported the complete control of acute vomiting. Nausea outcomes were reported in only 10 studies.

For only two groups of studies was a pooled analysis possible. The use of additive steroids combined with 5-HT3 antagonists had been examined in two studies[3,4] which are pooled and demonstrate good benefit. The other compared granisitron 20 microg/kg with 40 microg/kg and this demonstrated no clear difference in the doses[5,6,7].

Discussion

This systematic review has demonstrated the existence of a surprisingly small number of trials addressing the prevention and treatment of chemotherapy induced nausea and vomiting in children.

While a clearly defined route, schedule or dose of maximal efficiency of any antiemetic medication cannot be determined from this review, there has been evidence to suggest benefit from the use of 5HT3 antagonists with dexamethasone, in highly emetogenic chemotherapy.

Future research questions should evaluate patient centred differences between the 5HT3 antagonists, explore dosing and duration and clarify the role of new agents. This research should be reported with validated age-appropriate measures and should be performed in conjunction with children, young people and families that have undergone chemotherapy[8].

References

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