



We found evidence about antiemetic medicines that work well to prevent people from being sick after general anaesthesia. The best antiemetic medicines with reliable evidence were aprepitant, ramosetron, granisetron, dexamethasone, and ondansetron, followed by fosaprepitant and droperidol. However, we did not find enough reliable evidence about potential unwanted effects to rank these medicines reliably according to how well they are tolerated.

Why do people become sick after an operation?

Feeling sick (nausea) or being sick (vomiting) is a common unwanted effect of operations involving general anaesthesia. Most unwanted effects of general anaesthesia happen immediately and stop after a few hours, although some people may continue to feel sick for up to a day. If people carry on feeling or being sick, they might have to stay in hospital longer than expected and may experience other unwanted effects or complications. Women, people taking opioid painkillers, those who have had motion sickness, and those who were sick after previous operations or more likely to be sick after an operation.

What types of medicines prevent people from being sick?

Medicines called antiemetics are given to prevent people from feeling or being sick. These medicines may be given before or during anaesthesia. Antiemetic medicines are grouped into six main classes based on how they act. Combining medicines from different classes sometimes makes them work better.

Why and how we did this Cochrane Review

- We wanted to find out which medicines work best to prevent people from being sick after an operation and cause the fewest unwanted effects. Some unwanted effects of antiemetic medicines include headache, constipation, movement disorders such as tremors, sleepiness, irregular heartbeat, and wound infection.
- We searched for studies that looked at the use of antiemetic medicines in adults having general anaesthesia to prevent people from being sick afterwards. We looked for randomized controlled studies (a type of study that usually gives the most reliable evidence about the effects of a treatment) published up to November 2017.
- We compared all antiemetic medicines with each other using a mathematical method called network meta-analysis.

What evidence did we find?

We found 585 studies in 97,516 people (83% women, 88% taking opioid painkillers) who were given antiemetic medicines before or during general anaesthesia. Most studies compared medicines with a dummy (placebo) treatment. These studies either measured how many people were sick in the first 24 hours after their operation or how many unwanted effects were reported, or both of these outcomes.

What are our main results?

- Compared with placebo treatment, 10 out of 28 single medicines and 29 out of 36 combinations of medicines prevented people from being sick in the first 24 hours after their operation (282 studies).
- Combinations of antiemetic medicines generally worked better than single medicines. However, aprepitant, casopitant, and fosaprepitant worked as well alone as most combinations of antiemetics.
- The single medicine that worked best in the ranking of all medicines was fosaprepitant, followed by casopitant, aprepitant, ramosetron, granisetron, dexamethasone, tropisetron, ondansetron, dolasetron, and droperidol.
- We are confident that aprepitant, ramosetron, granisetron, ondansetron, and dolasetron prevent people from being sick. We are moderately confident that fosaprepitant and droperidol work, but this finding may change when further evidence becomes available. We are uncertain how well casopitant, tropisetron, and dolasetron work.
- Not all studies looked at serious, life-threatening unwanted effects (28 studies). We are uncertain how many unwanted effects were reported and at what rate serious, life-threatening unwanted effects occur compared to placebo.
- Of the best medicines with most reliable evidence for preventing being sick, granisetron and ondansetron probably made little to no difference in occurrence of unwanted effects compared to placebo, whereas dexamethasone and droperidol may cause fewer unwanted effects than placebo. We are uncertain about unwanted effects with aprepitant and ramosetron (61 studies). We found no studies reporting unwanted effects for fosaprepitant.
- We are less confident about unwanted effects of other antiemetic medicines because we found little reliable evidence about this.

Reference:

Weibel S et al. Drugs for preventing postoperative nausea and vomiting in adults after general anaesthesia: a network meta-analysis. Cochrane Database of Systematic Reviews. 2020;(10). doi:10.1002/14651858.CD012859.pub2

Contact: Stephanie Weibel (weibel_s@ukw.de); Peter Kranke (kranke_p@ukw.de); Department of Anaesthesia of the University Hospitals of Würzburg

