

## No evidence identified interventions that decrease the risk of adverse cardiac events for patients receiving chemotherapy and serotonin 5-hydroxytryptamine 3 receptor (5-HT<sub>3</sub>) antagonists

### Summary

This review is a descriptive synthesis of 3 studies evaluating the use of ECG monitoring to mitigate potential cardiac harms associated with the use of 5HT<sub>3</sub> medications. The study found a dearth of evidence in the area, thus the usefulness of ECG and other diagnostic interventions remains unclear. These results are of potential interest to policy-makers, researchers and clinicians.

### Implications

Future research should be aimed at evaluating potential diagnostic interventions that mitigate cardiac risk in post-surgical patients and/or patients undergoing chemotherapy who are using 5HT<sub>3</sub> antagonists. It is recommended that the usefulness of these interventions be clarified through research before clinical decisions are made on the prescription of interventions to reduce harms in these populations.

**Reference:** Tricco AC, Soobiah C, Hui W, et al. Interventions to decrease the risk of adverse cardiac events for patients receiving chemotherapy and serotonin (5-HT<sub>3</sub>) receptor antagonists: a systematic review. *BMC Pharmacol Toxicol.* 2015;16:1.

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### What is the current situation?

- Serotonin 5-hydroxytryptamine 3 (5-HT<sub>3</sub>) receptor antagonists are drugs that effectively relieve nausea and vomiting.
- However, 5-HT<sub>3</sub> receptor antagonists may also cause cardiac harm.
- The objective of this systematic review was to identify diagnostic interventions that lessen the risk of adverse cardiac events associated with the use of 5-HT<sub>3</sub> receptor antagonist medications.

### How was the review conducted?

- The study population included patients undergoing chemotherapy or surgery who were receiving 5-HT<sub>3</sub> receptor antagonists and an intervention aimed at moderating cardiac risk.
- The outcomes of interest included arrhythmia, cardiac death, QT/PR prolongation or all-cause death.
- Rigorous methods were used to search, screen, abstract and assess study quality.
- The protocol (or plan) for the review was registered and published.

### What did the review find?

- 3 relevant studies were identified, including a total of 256 adults receiving chemotherapy. Data were not suited for meta-analysis.
- Electrocardiogram (ECG) monitoring was the only intervention examined in all three studies.
- No clinically significant differences in ECG evaluations were observed for patients receiving 5-HT<sub>3</sub> receptor antagonists.
- No studies compared patients receiving 5-HT<sub>3</sub> receptor antagonists to those receiving placebo or usual care.
- Minor increases in PR and QT intervals were observed in two trials.
- One study reported four deaths unrelated to the administration of 5-HT<sub>3</sub> receptor antagonists.