A Prospective Observational Study of Antineoplastic Induced Nausea and Vomiting (AINV) Prophylaxis and Monitoring

Authors: Andrew Paton, A/Pharmacist Team Leader – Oncology, Children's Health Queensland Hospital and Health Service.
Lily Arrate, student researcher, James Cook University.

Background

Antineoplastic induced nausea and vomiting (AINV) is a common and debilitating side effect associated with antineoplastic agents. Since introducing an AINV guideline based on current literature[1,2,3,4], an assessment of the effect, guideline adherence and AINV assessment tools has not occurred.

Aims

Firstly, to determine the proportion of patients experiencing AINV at a paediatric hospital. Secondly, to determine the proportion of patients receiving appropriate AINV prophylaxis and effect on AINV. Finally, to understand the AINV assessment tools used and frequency of monitoring.

Methods

Data from patients receiving antineoplastic therapy as an inpatient was prospectively collected over a two-week period. Demographics, antineoplastic therapy, AINV prophylaxis, AINV response, AINV assessment and frequency of assessment were collected.

AINV response after cancer care therapy was defined as:

- Complete protection (CP) – no emetic episodes, no significant nausea and no use of rescue medications
- Complete response (CR) – no emetic episodes and no use of rescue medications
- Incomplete response (IR) – emesis and use of rescue medications

Results

27 patients, including 4 antineoplastic naive, received 27 cycles of antineoplastic therapy. Median age was 10 years (range 2-16 years) and 56% were female. 67% of cycles were highly emetogenic chemotherapy (HEC) and 30% were moderately emetogenic chemotherapy (MEC). 58% of patients were being treated for solid tumours.

CP occurred in 61% of HEC cycles in the acute phase (hour 0-24) and 67% in the delayed phase (hour 24-120) (Figure 1). CP occurred in 13% of MEC cycles in the acute phase and 50% in the delayed phase (Figure 2).

52% of patients received AINV prophylaxis adherent to institutional guidelines. The most common reason for nonadherence was omission of regular dexamethasone (Figure 3). Patients had a higher risk of both acute and delayed AINV when AINV prophylaxis did not adhere to guidelines.

AINV monitoring was mainly documented by nurses (65%) and medical officers (33%). AINV reporting was predominantly qualitative (59%) followed by Face, Legs, Activity, Cry, Consolability scale (FLACC) (33%).

Figure 1: AINV Response - High Emetogenic Risk

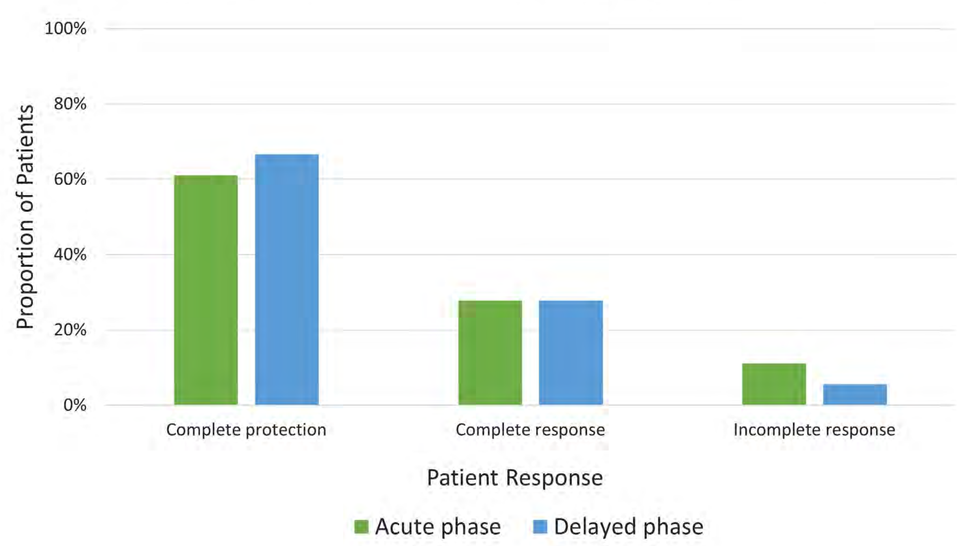


Figure 2: AINV Response - Moderate Emetogenic Risk

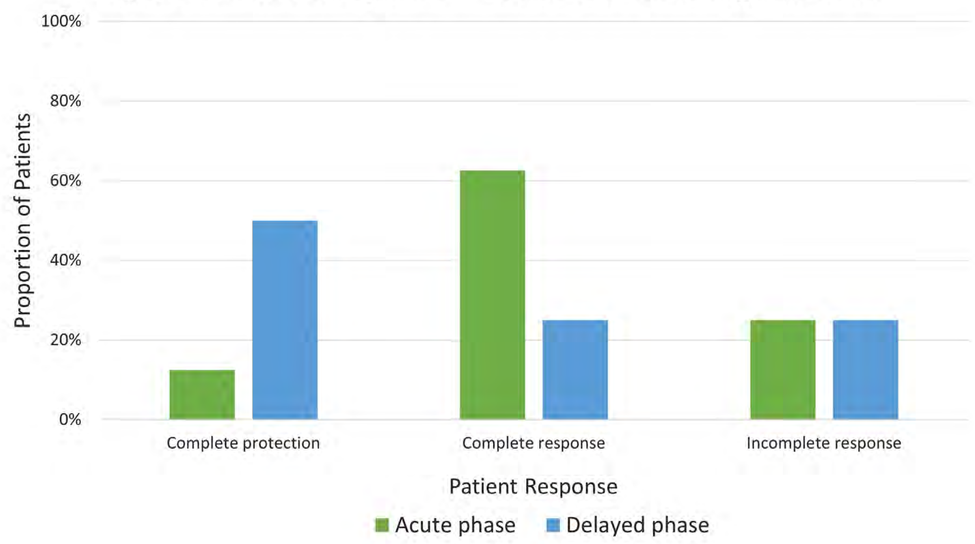
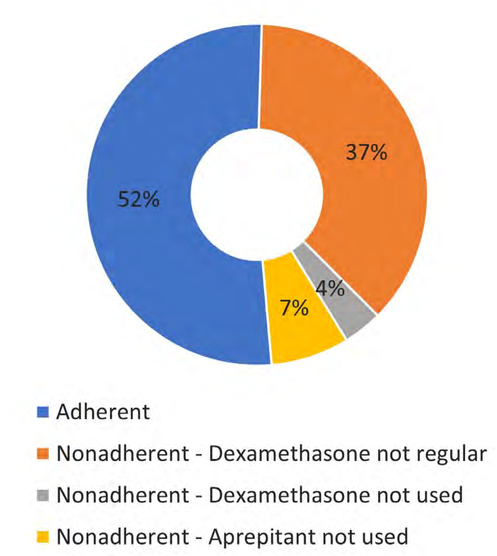


Figure 3: AINV Guideline Adherence



Conclusion

Despite the implementation of an AINV guideline and use of AINV prophylaxis, AINV remains a significant concern for paediatric patients. While HEC AINV response was encouraging, MEC response rates were poor. This may be due to underutilisation of dexamethasone and aprepitant in patients receiving MEC. Adherence to AINV prophylaxis guidelines may reduce AINV in these patients. The use of validated AINV assessment tools may more accurately describe AINV in these patients.

Version control: v01. 11/11/2022

References
1. Dupuis L et.al, 2011, Pediatr Blood Cancer, 57:191-198.
2. Jordan K et al. 2007, Oncologist, 12:1143-1150.
3. Dupuis L et.al, 2013, Pediatr Blood Cancer, 60:1073-1082.
4. Patel, P et.al, 2017, Pediatr Blood Cancer, 64;e26542.