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An Evidence Practice Gap in Antiemetic Prescription with Chemotherapy

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ABSTRACT

***Background*:** Chemotherapy induced nausea and vomiting is an added distress to patients burdened by the illness. In an effort to tackle the emetogenic potential of the agents, guidelines have been proposed to maintain uniformity in prescription and improvement in patient tolerance; but their utility and practice is not consistent. The aim of this clinical audit was to assess the antiemetic .practice and investigate the adherence to antiemetic clinical practice guideline

Methods: We performed an audit of the antiemetic practices in our tertiary referral centre. A .questionnaire based interview was completed at the outpatient visit to tabulate the data

Results: 99 (81.8%) patients received chemotherapy of at least low emetogenic risk. 83 (84%) patients received prophylaxis which was appropriate in 65% based on the our centre's antiemetic regimen. This was however inappropriate in 76% of patients based on the international practice .parameters

Conclusions: Guidelines are not uniformly representative of all populations and modifications to guidelines based on local data are required to ensure success of such policies. There exist evidence-.practice gaps in antiemetic policies

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Introduction

Nausea and vomiting are amongst the most distressing adverse effects seen in an estimated 70 – 80% of patients undergoing chemotherapy (1). Chemotherapy Induced Nausea and Vomiting (CINV) can significantly affect the quality of life. With the correct use of antiemetic agents, CINV can be prevented in up to 80% of patients. Treatment guidelines serve as evidence based tools that enable physicians to integrate the latest clinical research to improve practice.

There are such evidence based practice guidelines on the optimal antiemetic prophylaxis for CINV which are uniform in their classification of chemotherapeutic agents based on emetogenic risk and similar in advice regarding optimal prophylactic drugs (2-4). However despite the availability of such guidelines, there is evidence that adherence to and implementation of treatment recommendations is sub-optimal (5). This audit focuses on the adherence in clinical practice to these guidelines.

Methods

Study design

This was a prospective descriptive study. The data was obtained from patients visiting the Lymphoma Leukaemia clinic (LLC).The LLC functions twice a week on Tuesdays and Fridays. The data was collected from 6 successive Outpatient days of Clinical Haematology from 05.11.2013 to 24.11.2013. Data from 121 patients was recorded. We tabulated the antiemetic prescription based on the emetogenic potential based on the guidelines as described below. Also the adequacy based on the antiemetic policy of our centre was recorded for adequacy.

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Table1. Baseline demographic data.

Variable	Patient N (%)
Age	
Paediatric (< 16y)	27(22)
Adult	94 (78)
Sex	
Male	73 (60)
Female	48 (40)
Diagnosis	
ALL	52 (43)
AML	07 (06)
Hodgkin Disease	32 (26)
NHL	30 (25)
Emetogenic risk#	
Minimal	22 (18)
Low	07 (06)
Moderate	40 (33)
High	52 (43)
Emetogenic risk*	
Minimal	22 (18)
Low	07 (06)
Moderate	88 (73)
High	04 (03)

* in accordance with the departmental antiemetic policy
# As per the MASCC
ALL: Acute Lymphblastic Leukemia, AML: Acute myeloid leukemia, NHL: Non-Hodgkin lymphoma

Data Collection

A questionnaire containing basic demographic details; disease type; chemotherapy protocol and antiemetic use was completed at the time of chemotherapy administration in the day care service. Data collected was entered onto an Excel worksheet. An antiemetic prescription or use not in accordance with either the clinical practice guideline or the departmental policy was categorised accordingly as inappropriate. The chemotherapy categorisation of emetogenic potential was based on published classification (6).

Selection Criteria

Inclusion criteria: Patients who presented with

a. Acute Lymphoblastic Leukaemia;
b. Acute Myeloid Leukaemia
c. Lymphoma (Hodgkin and Non Hodgkin)

Exclusion criteria: Patients diagnosed with

a. Acute Promyelocytic Leukaemia
b. Multiple Myeloma
c. Post Auto/Allo Stem cell transplant
d. Chronic Leukaemia

Data Analysis

The American Society of Clinical Oncology (ASCO), National Comprehensive Cancer Network (NCCN) and Multinational Association of Supportive Care in Cancer (MASCC) (2, 7, 8) practice guidelines were used to assess the risk of emesis of each chemotherapy regimen and prescribing compliance with the antiemetic protocol. Antiemetic adequacy according to departmental policy was also tabulated. Descriptive statistical analysis was carried out and the results are presented as frequencies and percentages.

Clinical Practice Guideline for antiemetic prophylaxis (MASCC/ASCO/NCCN)

High emetic risk

Serotonin (5-HT3) Antagonist+ Neurokinin 1 Antagonist+ Steroid.

Moderate emetic risk

Serotonin (5-HT3) Antagonist+ Steroid.

Low emetic risk

A single 8 mg dose of dexamethasone before chemotherapy is suggested. Alternatively Serotonin (5-HT3) Antagonist OR Dopamine receptor antagonist.

Minimal emetic risk

No antiemetic in routine before or after chemotherapy.

Combination chemotherapy

Administer antiemetics appropriate for the component chemotherapeutic agent of greatest emetic risk.

Departmental policy of antiemetic prophylaxis

High emetic risk

Serotonin (5-HT3) Antagonist/ Neurokinin 1 Antagonist/ Dopamine receptor antagonist (combination of at least two).

Moderate and low emetic Risk

Serotonin (5-HT3) OR Dopamine receptor antagonist.

Minimal emetic risk

No antiemetic in routine before or after chemotherapy.

Combination chemotherapy

Administer antiemetics appropriate for the component chemotherapeutic agent of greatest emetic risk.

An important difference at our centre based on practice is that the combination of anthracycline and cyclophosphamide/ DTIC which is categorised with highly emetogenic potential does not warrant a mandatory inclusion of Neurokinin- 1 antagonist. All our lymphoma patients were on such regimes (Chemotherapy regimens used included CHOP /R-CHOP-21; ALL-BFM 2002; ABVD etc.).

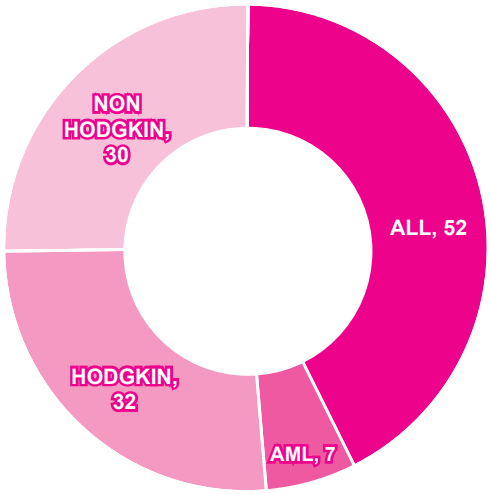

Figure 1. Disease distribution in subjects (n=121). (ALL: Acute .(Lymphblastic Leukemia, AML: Acute myeloid leukemia

Results

A total of 121 patients had presented to the LLC. Of these 99 were eligible to receive prophylaxis for acute onset CINV. We noted that antiemetics were prescribed in 90 (74%) patients receiving chemotherapy. However 99 (82%) patients by risk potential required antiemetic prophylaxis. 83(84%) of these patients did receive prophylaxis with antiemetics. In our assessment, antiemetic prescription was inappropriate for the emetogenic potential in 91 (76%) patients based on the guidelines while it was appropriate in 79 (65%) patients based on our department formulated strategy.

We noted that some patients receiving chemotherapy with minimal emetogenic potential (e.g. Vincristine during maintenance phase in ALL) also received chemotherapy without any prior episode which was also considered inappropriate in our analysis.

Discussion

Acute CINV is unpleasant adverse effect following chemotherapy (9).To overcome this side effect , various guidelines have been proposed ,to optimise the use of antiemetic agents (10). However it has been observed with various guidelines and evidence bases that the recommendations are not effectively translated into daily practice across groups for a variety of reasons (11, 12).

A similar pattern has also been noted earlier with regard to antiemetic policies and cancer chemotherapy (13, 14). Our results suggest a similar relation to published guidelines. The findings highlight an evidence-practice gap. There exists an inappropriate prescription practice with lack of adherence to antiemetic clinical practice guidelines.

We also note the possibility that policies could defer across practices for many reasons, where local practice guidelines are formulated to aid in the decision making (15, 16). Such local practice guidelines also serve in symptom relief (17). Guidelines and recommendation

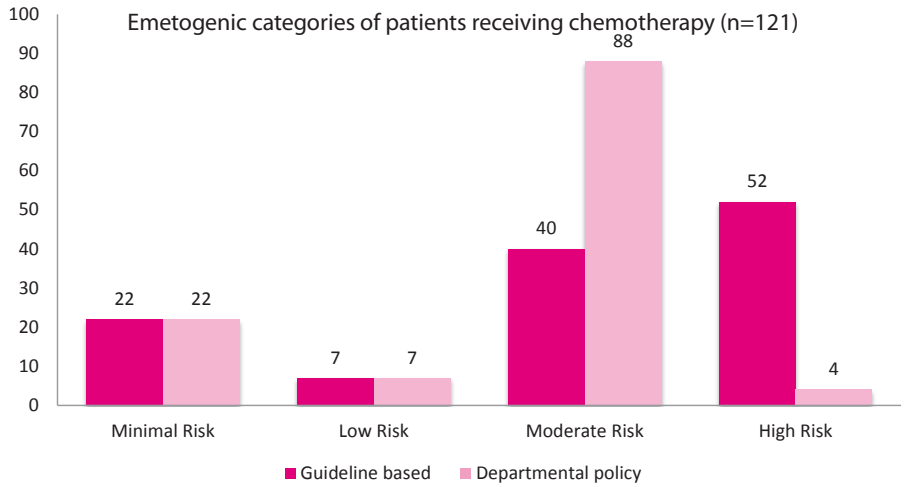

Figure 2. Distribution by emetogenic potential.

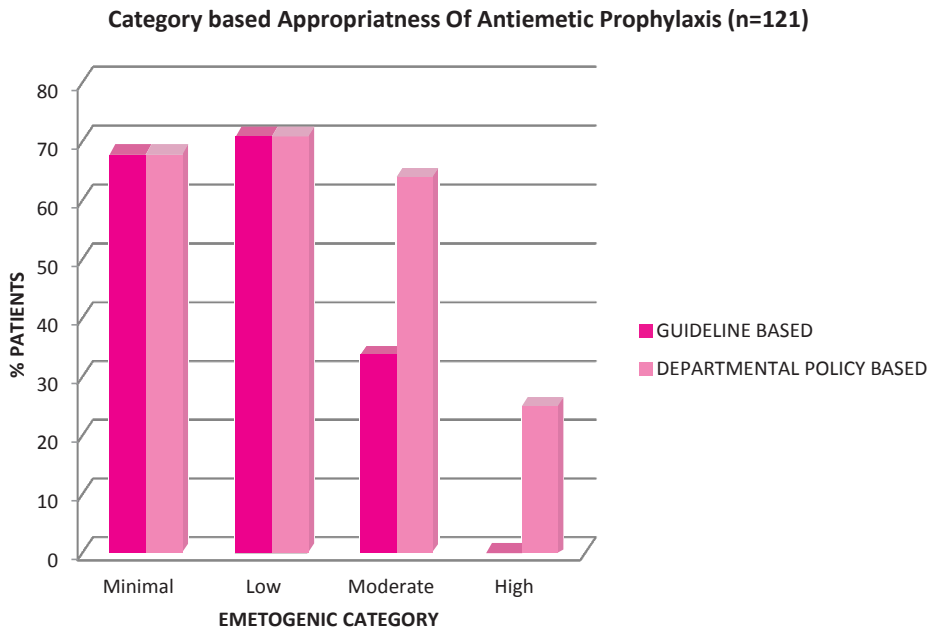

Figure 3. Level of appropriateness in antiemetic prescription.

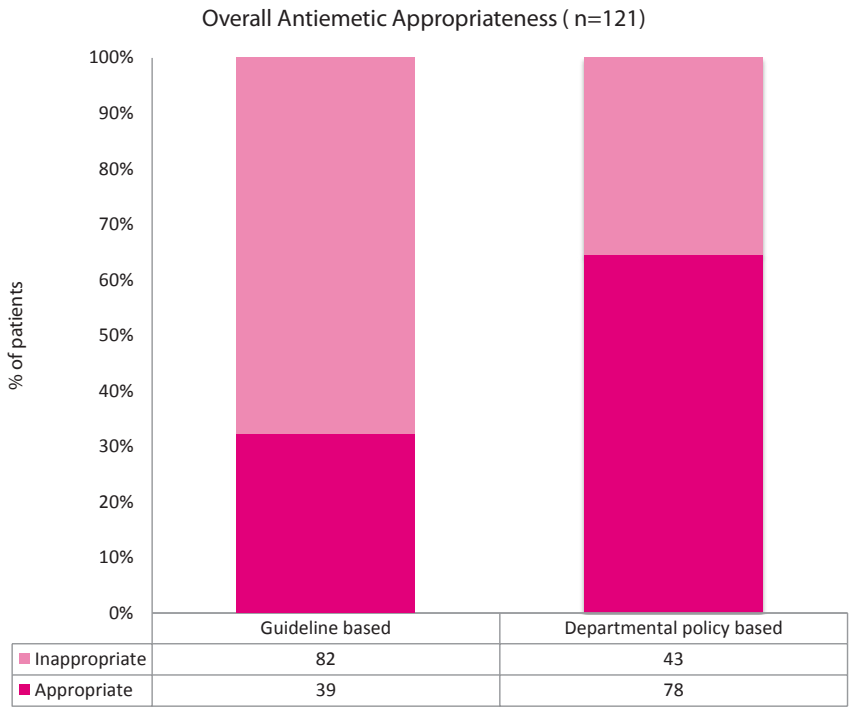

Figure 4. Comparison of appropriatness based on guideline practice and local policy.

might not be pan representative across communities. Modifications to guidelines based on local data could possibly aid in their appropriateness (18).

Recommendations:

1. Prescribers should review the clinical practice guidelines to ensure they are aware of the recommendations for each category of emetogenic risk.
2. Staff and patients should receive education about the need for prescription and use of anti-emetics with chemotherapy.
3. Re-assessments using auditing and feedback after appropriate educative programs should serve as regulatory tools to encourage guideline adherence.

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