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Chemotherapy-Induced Nausea and Vomiting: An Oncology-Day Unit Experience

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Abstract

Introduction: Chemotherapy-induced nausea and vomiting are the most common side-effects feared by patients. Although significant advances have been made, chemotherapy-induced nausea and vomiting remain an important adverse effect of treatment.

Purpose: The purpose of our study was to evaluate the prevalence of chemotherapy-induced nausea and vomiting in an oncology day unit in France. We described then the management of this side-effect.

Methods: This retrospective mono-centric observational study assessed 65 patients in our oncology day unit. They all were on chemotherapy for solid tumors and should have had already received one cycle of chemotherapy. Patients were metastatic or treated with a curative intent. During three days, patients were asked if they had experienced nausea and/or vomiting after their last cycle of treatment.

Results: 65 patients were enrolled, 45 women (69%) and 20 men (31%). The median age was 63 years. 20 patients were elderly people. 48 patients were metastatic (74%) and 17(26%) were on neo-adjuvant or adjuvant therapy. 24 people (37%) experienced nausea (20 patients) or vomited (4 patients). Nausea was essentially grade I (60%). All patients received anti-emetic therapies. In the 24 patients who suffered from adverse effects, only 6 had corticosteroids, 15 had NK1 receptor inhibitors, 12 received 5-HT3 receptor inhibitors and 12 anti D2 treatments. 9 patients (14%) experienced refractory nausea and vomiting.

Conclusion: Even if guidelines exist and despite many therapeutics agents have improved patients' quality of life in terms of nausea and vomiting, in some cases it seems not to be enough.

Keywords: Chemotherapy; Nausea; Vomiting; Emesis; Neurokinin; 5-hydroxytryptamine 3

Introduction

Chemotherapy-induced nausea and vomiting (CINV) is a common side-effect of many cancer treatments. Nausea and vomiting are two of the most feared cancer-related side-effects for cancer patients and their families.

When poorly controlled, they can affect patients' quality of life and adversely impact on their ability to tolerate chemotherapy.

About a half of cancer patients will experience nausea and vomiting during the course of their disease either because of the cancer itself or because of their treatment.

Major progress in managing CINV use the combination of corticosteroids, 5-hydroxytryptamine 3 (5-HT3) receptor antagonist, aprepitant, a neurokinin 1 receptor antagonist and substituted benzamide.

Despite advances, there are major gaps in our understanding; like our poor ability to treat nausea sometimes. Additional gaps are highlighted by the lack of knowledge of some currently used anti-emetics; the variety of receptors at which agonists act to have anti-emetic effects; new drugs acting within the brainstem and the gaps in understanding the aspects of the emetic reflex.

Therefore important research is needed in that field. We present the results our study about the prevalence of emesis and vomiting due to chemotherapy in patients in our oncology day unit. We describe then the management of that common side-effect.

Methods

We conduct a retrospective, mono-centric, observational study, in our oncology day unit in France in November 2015.

During three days, 65 patients were asked about their experience in nausea and vomiting. All patients were at least on chemotherapy for solid tumor. The sampling was composed by both men and women, aged over than 18 years.

Chemotherapy could be palliative, neoadjuvant or adjuvant. Patients were more than eighteen years.

We enrolled all patients consecutively, and registered their experience about nausea and vomiting specifically due to their chemotherapy regimen.

Inclusion criteria: men or women, adults aged over 18 years, suffering from solid tumors, receiving chemotherapy, at any stage of the disease, could be also treated with radiotherapy.

Exclusion criteria: hematological, pulmonary or cervical malignancies, children, melanoma, patients that were not on chemotherapy on the day, patients receiving targeted therapy.

Statistical analysis was made by SAS 9.1 software.

Results

A total of 65 patients were enrolled: 45 women (69%) and 20 men (31%). Median age was 63 years. Most of patients were metastatic: 74% (n=48). 3 patients received neo-adjuvant chemotherapy and 14, adjuvant treatment. Metastatic patients had received on average 2.1 lines of chemotherapy (Figure 1a and 1b).

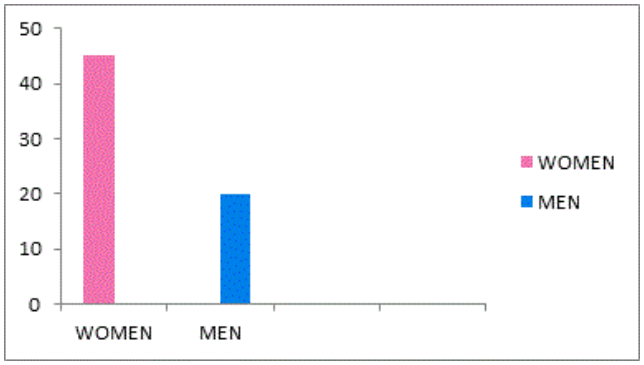

Figure 1a: Number of Men and Women. Majority of patients enrolled in the study were women.

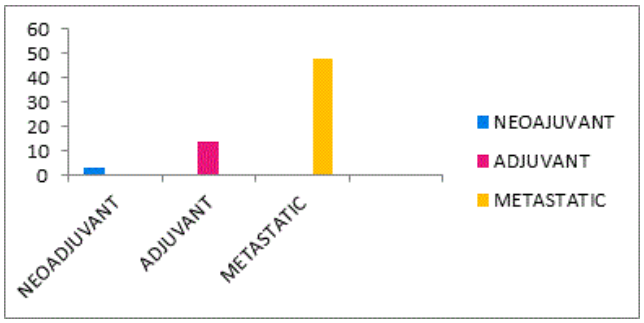

Figure 1b: Types of Chemotherapy. Most patients were at metastatic stages.

Patients' repartition

38% patients (n=25) had breast cancer. 28% (n=18) had gastro-intestinal cancer, 17% (n=11) had genitourinary malignancies, 15% (n=10) had gynecological tumors and 2% (n=1) had sarcoma (Figure 2).

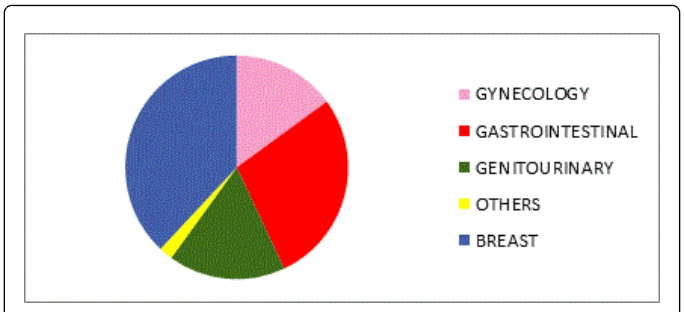

Figure 2: Malignancies. Majority of patients suffered from breast and gastrointestinal cancers.

Chemotherapy

65% (n=42) received mono-chemotherapy; 35% (n=23) received poly-chemotherapy; 26% (n=17) had platinum-based regimen; 26% (n=17) had taxanes; 20% (n=13) 5Fluorouracil and 15% (n=10) received anthracyclines (Figure 3).

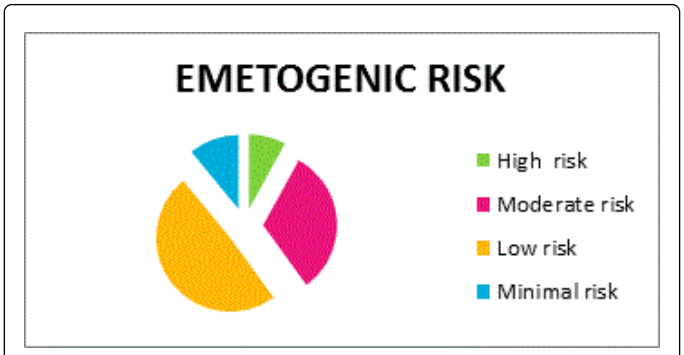

Figure 3: Chemotherapy drugs by emetogenic risk. Chemotherapy regimen was more often with moderate and low emetogenic risk.

Nausea/Vomiting

37% (n=24) patients experienced nausea and/or vomiting. People who had nausea had essentially grade I nausea while grade II nausea represented 12% of all patients.

Refractory nausea/vomiting represented 14% of all patients and 37.7% of those who had emesis or vomiting. 4 patients vomited.

Geriatric population

30% of patients (n=20) were elderly people, aged of 70 years or more. Median age in this population was 76,79 year old. 5 people experienced nausea (3 had grade I and 2 grade II) and 1 vomited.

Radiotherapy

2 patients had concomitant radiotherapy with chemotherapy. 1 had grade I nausea.

Treatments

We examined the group of patients who had experienced nausea and vomiting. People could receive one or the association of several agents.

We focused our attention on what anti-emetics therapies were given: Neurokinin NK1 receptor antagonist was given in 15 patients 5-HT3 receptor antagonist in 12 patients Anti D2 agents in 12 patients Corticosteroids were used in 6 patients Our sample is too small to conclude anything. We did not include patients with lung and cervical cancers that more often receive platinum-regimen chemotherapy that could be a limitation of the study. Our study is also mono-centric and retrospective.

Discussion

Chemotherapy-induced nausea and vomiting is a frequent and debilitating clinical complication of cytostatic chemotherapy.

Despite recent advances in the management of nausea and vomiting, it remains one of the most dreaded side-effect of chemotherapy [1].

Inadequately controlled CINV impairs daily functioning and quality of life, increases the use of healthcare resources, and can compromise adherence to treatment. Bloechl –Daum et al. studied the effects of CINV on the quality of life in 298 patients with cancer-67 of whom were treated with high emetogenic chemotherapy and 231 with moderate emetogenic chemotherapy. Nausea seemed to have a greater impact on daily life than vomiting as indicated by the mean Functional Living Index-Emesis [2].

However many nurses and physicians underestimate the incidence of CINV.

A useful framework for classifying agents was developed in 1997 by Hesketh et al. [3]. This was modified in 2004 at an expert consensus congress, and it divides chemotherapy agents into four levels, depending on their emetogenicity: high, moderate, low and minimal [4].

This framework has become an accepted standard for defining emetogenicity with internationally recognized bodies such as the American Society of Clinical Oncology (ASCO) and the Multinational Association of Supportive Cancer Care (MASCC) being among those that use it as the basis for the development of antiemetic guidelines.

First line recommendations are generally categorized according to the characteristics of the therapeutic agents being used.

For example, high risk chemotherapy (risk>90%)should be given in pre-chemotherapy: dexamethasone 8mg IV or PO+ Ondansetron 8 mg IV or 16 mg PO+ Aprepitant 125 mg PO 1 hour before chemotherapy; and in post chemotherapy: Dexamethasone 6mg daily for three days starting on the day after chemotherapy.

Moderate risk chemotherapy (30-90%) should be treated with, in pre-chemotherapy Dexamethasone 8mg IV or PO+ Ondansetron 8mg PO or IV and in post-chemotherapy with Dexamethasone 6mg daily for three days starting on the day after chemotherapy and Metoclopramide 10mg for three to five days.

Low risk chemotherapy (risk 10-30%) should be given in pre-chemotherapy Dexamethasone 8mg PO or IV and in post-chemotherapy Metoclopramide 10mg if necessary.

Minimal risk chemotherapy (risk<10%) shoud be treated with Metoclopramide in case.

However some patients still suffer from significant CINV. Once other causes of emesis have been excluded, second-line treatments should be considered such as Cyclizine 50mg or Levomepromazine 6-12 mg oral for 5 days.

In 2008, a roundtable meeting of experts in the field of the topic was convened after a detailed needs assessment revealed a knowledge gap in chemotherapy-induced nausea and vomiting management. The review found that many practitioners significantly underestimate the occurrence of chemotherapy-induced nausea and vomiting, and other failed to implement evidence-based guidelines [5].

In spite of the advances and our knowledge, more have to be done [6].

Our study is a small study, mono-centric, in an oncology day unit in the south of France.

The population is composed by female patients for the most. Female gender is known as CINV risk factor. Moreover our population study is young.

Most of them were treated for breast and gastrointestinal malignancies. One people had a sarcoma (Mentioned as “other”).

We had more metastatic patients who had already received several cycles of chemotherapy. They were Performans Status 1.

37% of our population experienced nausea and vomiting. All of them received at least one anti-emetic agent.

Corticosteroids are not enough used as it is recommended in the guidelines.

Refractory nausea represents 14%. These are situations where patients continue to have CINV, despite appropriate prophylactic measures, or continue to have CINV that is unresponsive despite appropriate interventions.

One of the main aims of CINV treatment is to provide patients with appropriate and adequate antiemetic prophylaxis to cover the entire risk period.

No recommendation exists in our center in regards of nausea and vomiting induced by chemotherapy.

Conclusion

At the light of our study, chemotherapy-induced nausea and vomiting always are problems concerning more than a third of our population.

Even if guidelines exist, there is still a gap between the real life and recommendations.

Chemotherapy-induced nausea and vomiting are the most dreaded and distressing side-effects for cancer patients’ quality of life and can interfere with their ability to receive intensive chemotherapy regimens.

More studies are needed to help practitioners to manage this very common side-effect.

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