

Symptom Distress and Chemotherapy Induced Nausea, Vomiting and Retching (CINVR) among Cancer Patients undergoing Chemotherapy

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Abstract: ***Background:** Cancer patients experience a wide variety of distressing symptoms of which CINVR is a common adverse effect that not only impacts quality of life, but also treatment outcomes. It is important to address these issues from both prevention and treatment standpoints so that patients remain adherent to their treatment. **Aim:** A quantitative descriptive study was conducted to assess the perception of symptom distress and CINVR among cancer patients undergoing chemotherapy in Hematology and Medical Oncology Departments of Christian Medical College, Vellore. **Methodology:** A Non experimental descriptive design was undertaken. A total of 181 adult cancer patients undergoing chemotherapy were selected using Simple random sampling technique. Data was collected using McCorkle symptom distress scale and Rhodes index of Nausea, Vomiting & Retching (INVR) questionnaires. Descriptive and inferential non parametric statistics such as frequency distributions, mean, standard deviation, Spearman's correlation and Chi square were used in this study. **Results:** The results revealed that 70.1% of the subjects perceived mild level of symptom distress and 5% of them perceived severe degree of symptom distress. 55.2% perceived mild degree of CINVR. The most commonly perceived distressing symptoms were concerns with appetite, outlook, pain frequency, fatigue, appearance and nausea frequency. The severity of CINVR diminishes over time post chemotherapy. There was statistically significant relationship between CINVR and Symptom distress ($p < 0.001$). Statistically significant association existed between CINVR with gender ($p = 0.051$) and previous history of nausea/ vomiting experience ($p = 0.004$) and between Symptom distress with gender ($p = 0.016$). **Conclusion:** The study reveals that cancer patients perceived a mild degree of symptom distress and CINVR which implies that these symptoms were adequately managed. However, this warrants for further exploration and development of strategies focusing on regular assessment and interventions to manage CINVR and symptom distress.*

Keywords: Symptom distress, CINVR

1. Introduction

The diagnosis of cancer is immensely devastating, furthermore, the disease manifests with varied symptoms leading to distress. Most often, patients dwell with these symptoms as they are desperate to achieve a cancer free status. Persistent, unrelieved symptoms impair quality of life (QOL) including activities of daily living, engagement in social and emotional well being and relationships (Stark et al., 2012). Despite evolution of newer cancer therapies, CINVR continues to be one of the most unpleasant, distressing and feared symptoms of cancer patients. These symptoms predispose patients to become non compliant to the chemotherapy, worsening their prognosis. Moreover, there is a lacuna in periodic objective assessment of these symptoms. Symptoms are most often reported by cancer patients only when it becomes severe. Studies in this field are scarce and little is known especially in our population.

1.1 Objectives

1) To assess the level of symptom distress experienced by cancer patients

- 2) To assess the perception of CINVR among cancer patients
- 3) To determine the relationship between symptom distress and CINVR among cancer patients
- 4) To find the association between symptom distress and CINVR with selected demographic and clinical variables

2. Methods

Design: A quantitative descriptive study design was adopted for the study.

Participants: A total of 181 adult cancer patients undergoing chemotherapy, who fulfilled the inclusion criteria were selected using Simple random sampling technique.

Sampling: Informed written consent was obtained from each participant prior to participation in this study. Self administered questionnaire was administered to the participants.

2.1 Data sources/measurement:

The data collection instrument was a questionnaire that consisted of 3 parts: Demographic & clinical variables,

McCorkle symptom distress scale and Rhodes index of Nausea, Vomiting & Retching (INVR).

1) McCorkle symptom distress scale (SDS)

The SDS is a self administered, self-reported questionnaire developed by Mc Corkle in the year 1978, revised in 1981. SDS consists of 13 items addressing the degree of symptom distress among cancer patients using a 5 point Likert scale on which patients rated their distress. A score of ‘1’ represents normal or no distress for a given symptom and a score of ‘5’ represents extensive distress, with scores of ‘2’, ‘3’ and ‘4’ representing intermediate levels of distress. The scoring ranges from 13 to 65. Higher scores indicate higher degrees of symptom distress. Patients with a score of 25 or greater have moderate distress and need to be evaluated for symptom relief. Patients with scores of 33 or greater are considered to have severe distress and warrant immediate intervention. Reliability & validity: Test-retest reliability score is 0.78. Content, construct, and criterion validity were supported for the SDS (McCorkle, 1981).

2) Rhodes index of Nausea, Vomiting & Retching (INVR):

INVR is a self reported questionnaire developed by Rhodes, V. A. & Mc Daniel, R. W. in 1999 to assess the objective and subjective factors of nausea, vomiting and retching experience among cancer patients receiving chemotherapy. INVR consists of 8 items with each item rated on a 5 point Likert scale (Scoring 0-4). The scores range from a low of 0 to a maximum of 32. The higher the total score, the greater the severity of nausea, vomiting, and retching. The score ranges of 1–8, 9–16 and 17–32 are classified as mild,

moderate, and severe NVR, respectively. The recall period is last 12 hours. INVR should be administered for 2 times a day per patient for 3 days (a total of 6 times). Reliability and validity: The tool has a reliability score of 0.98 (Cronbach’s alpha coefficient).The Content Validity Index (CVI) is 0.87 (Rhodes & McDaniel, 2001)

3. Results

1) Demographic and clinical variables:

Among the subjects, majority of them (70.7%) belonged to 30-59 years, 54.1% were women, 24.9% were graduates, 77.3% were unemployed, 47.5% had a monthly family income of Rs.5,000 to Rs.15, 000. 56.9% were from rural background. 90.1% had solid tumors. 31.5%, 23.8%, 12.7%, 9.9% were diagnosed with gastrointestinal, breast, gynecological and hematological malignancies respectively. 33.1% received Paclitaxel and Carboplatin based chemotherapy regimen. 93.9% had combination of antiemetics including serotonin blockers, dopaminergic blockers, neurokinin 1 inhibitors and steroids. 90.1% did not use over the counter drugs. 25.4% received first cycle of chemotherapy. Majority of them (79.2%) had no previous experience of nausea and vomiting. 86.7% had no history of motion sickness. Most of them (97.2%) did not consume alcohol.

2) Prevalence of symptom distress among cancer patients:

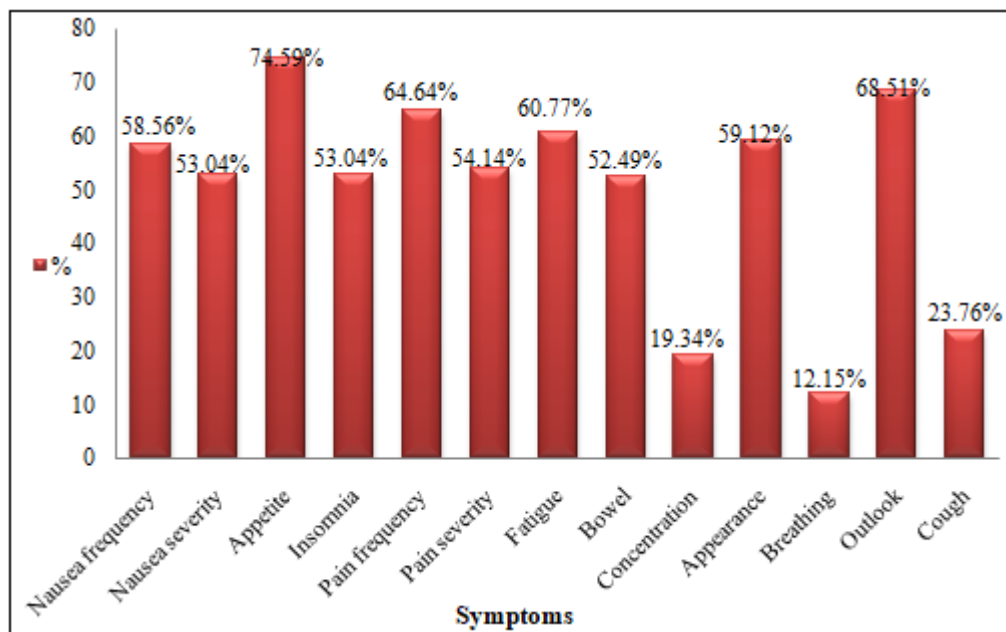


Figure 1: Prevalence of symptom distress among cancer patients

Fig1 reveals that the most commonly perceived distressing symptoms are concerns with appetite (74.59%), outlook (68.51%), pain frequency (64.64%), fatigue (60.77%), appearance (59.12%) and nausea frequency (58.56%).

3) Severity of symptom distress among cancer patients undergoing chemotherapy

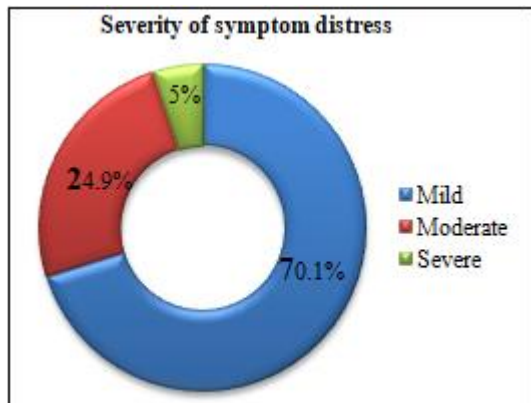


Figure 2: Severity of symptom distress among cancer patients

Fig 2 shows that majority of the subjects (70.1%) perceived mild level of symptom distress.

4) Perception of CINVR based on duration post chemotherapy

Table 1: Perception of CINVR based on duration post chemotherapy

| CINVR category | Duration post chemotherapy | Mean | Standard deviation |
|----------------|----------------------------|------|--------------------|
| Acute CINVR | 12 hours | 3.67 | 4.65 |
| | 24 hours | 2.89 | 4.59 |
| Delayed CINVR | 36 hours | 2.87 | 4.31 |
| | 48 hours | 1.74 | 4.04 |
| | 60 hours | 1.39 | 3.89 |
| | 72 hours | 1.36 | 3.65 |

Table 1 reveals that the perception of CINVR severity diminishes over time. However, in all categories cancer patients perceived mild CINVR (Mild CINVR: 1-8 score)

5) Severity of CINVR experienced by cancer patients undergoing chemotherapy

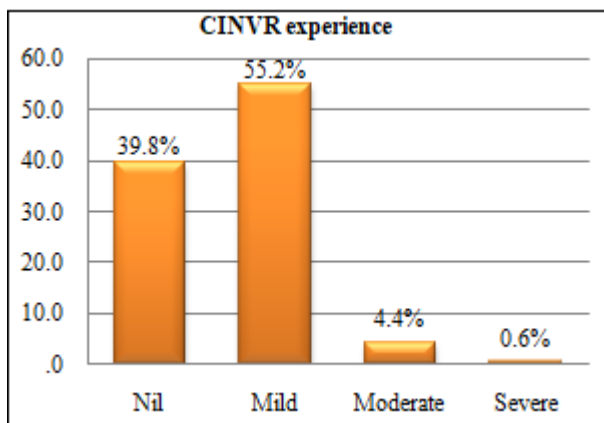


Figure 3: Severity of chemotherapy induced nausea, vomiting and retching experience

Fig 3 reveals that more than half of the subjects (55.2%) exhibited mild degree of chemotherapy induced nausea, vomiting and retching.

6) Overall severity of Symptom Distress and CINVR

Table 2: Overall severity of Symptom Distress and CINVR

| Sl. No. | Variable | Mean | Standard Deviation |
|---------|------------------|-------|--------------------|
| 1 | CINVR | 2.32 | 3.06 |
| 2 | Symptom Distress | 21.83 | 5.67 |

Table 2 reveals mild degree of SD and CINVR experience.

7) Relationship between SD and CINVR

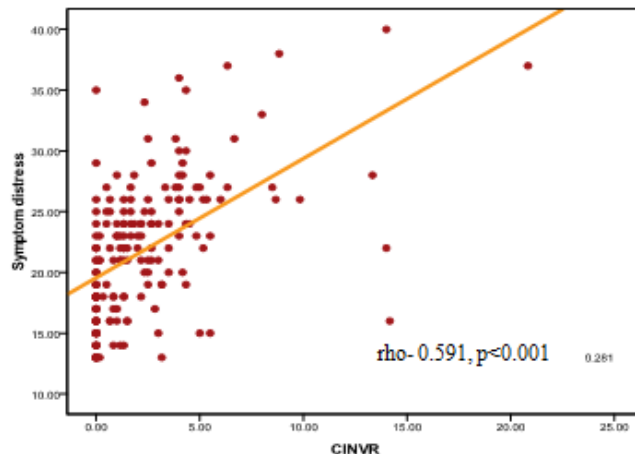


Figure 3: Relationship between Symptom distress and CINVR

Fig 3 depicts statistically significant relationship between Symptom distress and CINVR (p<0.001)

8) Association between symptom distress and CINVR with selected demographic/clinical variables

Statistically significant association existed between Symptom distress with gender (X² value-8.210, p-0.016). Statistically significant association existed between CINVR with gender (X² value-7.759, p-0.051) and previous history of nausea/ vomiting experience (X² value-13.212, p-0.004).

4. Discussion

This study aimed to assess the perception of symptom distress and CINVR experienced by cancer patients and to determine the relationship between symptom distress and CINVR. The most commonly perceived distressing symptoms were concerns with appetite (74.59%), outlook (68.51%), pain frequency (64.64%), fatigue (60.77%), appearance (59.12%) and nausea frequency (58.56%). The severity of CINR diminishes over time post chemotherapy. In a similar study by Stark et al., 2012 revealed that the most common distressing symptoms were pain and fatigue. Thiagarajan, et al., 2016 assessed the symptom prevalence and related distress among 303 cancer patients undergoing chemotherapy. The findings revealed that the mean number of symptoms was 14.5. Of which, the most prevalent symptoms were fatigue, dry mouth, hair loss, drowsiness and lack of appetite. Higher symptom frequency was also found to be significantly related to greater distress in cancer patients undergoing chemotherapy. In a systematic review of the Symptom Distress Scale among 21 Advanced Cancer Studies revealed fatigue to be the most prevalent and

distressing symptom. Appetite ranked higher than pain intensity and pain frequency (Stapleton et al., 2016).

55.2% perceived mild degree of CINVR only 5% of participants had severe degree of CINVR which is congruent with the findings of a multi centric online survey where, 8.8% in Italy, 11.6% in France and 19.2% in Germany experienced a severe CINV episode (Turini M et al., 2015). An observational study in Japan studied the incidence of CINV and severity of nausea among 190 colorectal cancer patients. The results revealed that acute CINV was well controlled. 6.8% and 2.1% of patients suffered from acute nausea and acute vomiting respectively, whereas the prevalence of delayed CINV was relatively high. 37.4% and 12.6% of patients had delayed nausea and delayed vomiting respectively. (Tsuji, Y., et al., 2017). In a similar study done in Spain among 261 cancer patients, to assess incidence of CINV with moderately emetogenic chemotherapy, it was found that there was an increase in the percentage of patients with significant nausea (from 9.4 to 21.7 %) and vomiting (from 9.2 to 16.5 %) from the acute to the delayed phase (Escobar et al., 2015). Whereas, the present study revealed that the severity of CINVR diminished with time. At 12 hours post chemotherapy the mean perception of CINV was 3.67 whereas, after 72 hours it was 1.36.

Statistically significant association existed between CINVR with gender ($p=0.051$) and previous history of nausea/vomiting experience ($p=0.004$). Statistically significant association existed between Symptom distress with gender ($p=0.016$). This finding is homogenous with the systematic review by Mosa et al (2020) which identified seven risk factors with notable summary odds ratio: history of nausea/vomiting, gender expectancy of CINV, younger age, anxiety, history of morning sickness and low alcohol intake

The investigator felt that, though most of the cancer patients perceived mild symptom distress and CINVR concerns, this could be attributed to appropriate and timely administration of antiemetics, analgesics, adequate social support and self coping strategies. Also, these symptoms would have been perceived mildly as their focus is on achieving a control/cure of cancer.

5. Implications for nursing

The findings of the study affirm the presence of mild symptom distress and CINVR, which explains that these symptoms were well managed. However, it is imperative to use a standardized tool to assess symptom distress and CINVR at regular intervals to timely address even the mild symptoms of cancer patients. This will in turn enhance the compliance to chemotherapy. This warrants the need for a Chemotherapy nurse counselor to cater to the needs of these patients.

6. Conclusion

It is vital to support the patient as he/she experiences various adverse effects due to cancer and chemotherapy, in order to develop positive attitude towards cancer and its treatment.

This will enhance their coping, compliance and quality of life.

Conflict of interest: Nil

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