The incidence of neutropenic sepsis and its relationship to the awareness of neutropenic sepsis & practice of personal hygiene among patients who have received at least one chemotherapy cycle within past six months at Apeksha Hospital, Maharagama, Sri Lanka.

Group D1.3

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Introduction

Neutropenic sepsis is a common complication after chemotherapy. There is a tendency for neutropenic sepsis to occur more commonly in the first two cycles of treatment as the literature suggests.(2) Patients need to be aware of symptoms predicting neutropenic sepsis in order to seek medical advices as soon as possible. Maintenance of proper hygiene eliminates pathogenic microorganisms that can easily lead to infection in an immunocompromised patient due to chemotherapy. The research assesses the patients' knowledge on neutropenic sepsis and their practice of proper hygiene to see their relationship to the incidence of neutropenic sepsis.

Objective

To assess the incidence of neutropenic sepsis and its relationship to the awareness of neutropenic sepsis & practice of personal hygiene among patients who have received at least one chemotherapy cycle within past six months at Apeksha Hospital, Maharagama, Sri Lanka.

Method

Design - Quantitative descriptive cross sectional study.
Study setting - Study was conducted in five selected clinics at Apeksha Hospital, Maharagama.
Study period - August 2019 – May 2020
Study population - Patients with malignancies who have received chemotherapy at Apeksha hospital, Maharagama.
Sample – A convenient sample of 384 chemotherapy received patients.
Data collection instrument -A questionnaire with two tools which assess the knowledge of neutropenic sepsis and life habits w used along with the demographic form.
PART 1 - Knowledge of neutropenic sepsis component
PART 2 - Life habit assessment component
We developed our questionnaire based on an internationally recommended and published research article on “Effect of an education program on knowledge, self-care behavior and hand washing competence on prevention of febrile neutropenia among breast cancer patients receiving Doxorubicin and Cyclophosphamide in Chemotherapy Day Centre” and modified the questionnaire in a way, compatible and relevant to Sri Lanka.
Validated process: The questionnaire was discussed with a panel of two consultant physicians who were familiar to chemotherapy and neutropenic sepsis in North Colombo Teaching Hospital, Ragama. Their feedback was obtained and each item was rated based on clarity, cultural acceptability and relevance. A pre test was done at oncology clinic, North Colombo Teaching Hospital with 20 chemotherapy received patients. Changes were made accordingly.
Data collection – the two parts of the questionnaire along with demographic form, were administered as a printed, self-administered questionnaire. In cases of poor literacy, we used interviewe method under their will.
Data processing and analysis – SPSS version 21

Results

Table 1: Baseline demographic details of the participants

Demographic data		Number of patients	Percentage/ SD
Age	Mean	53.2 years	12.64
Gender	Male	93	24.22%
	Female	291	75.78%
Educational level	Below O/L	161	41.93%
	O/L	91	23.70%
	A/L	117	30.47%
	Graduated	15	3.90%
Malignancy type	Unaware	33	8.59%
	Aware	351	91.41%
Nature of the malignancy (Grade, Stage, Metastasis)	Unaware	221	57.55%
	Aware	163	42.45%
Name/s of chemotherapeutic drug/s given	Unaware	384	100%
	Aware	0	0%

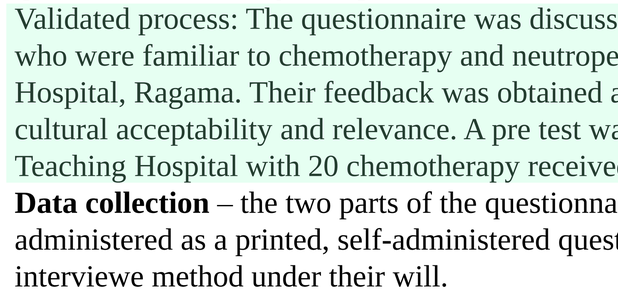

Figure 1 : Incidence of Neutropenic Sepsis.

Figure 2 : Distribution of Neutropenic Septic events among cancer patients.

H0 : There is no association or difference between the incidence of Neutropenic Sepsis in the patients who scored above cutoff (55) and below cutoff in the questionnaire assessing the awareness of Neutropenic Sepsis.
H0 is rejected. (Table 2 and 3)

Table 2

Ranks[a]

	Awareness	N	Mean Rank	Sum of Ranks
Awareness of Neutropenic sepsis	.00	59	30.00	1770.00
	1.00	43	81.00	3483.00
	Total	102		

a. Neutropenic sepsis = Patients who had NS (NS+)

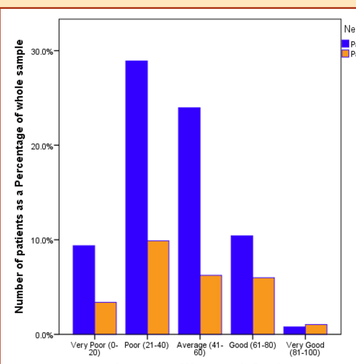

Figure 3 : Occurrence versus awareness of Neutropenic Sepsis among all patients.

Table 3

Test Statistics[a,b]

	Awareness of Neutropenic sepsis
Mann-Whitney U	.000
Wilcoxon W	1770.000
Z	-8.693
Asymp. Sig. (2-tailed)	.000

a. Neutropenic sepsis = Patients who had NS (NS+)
b. Grouping Variable: Awareness

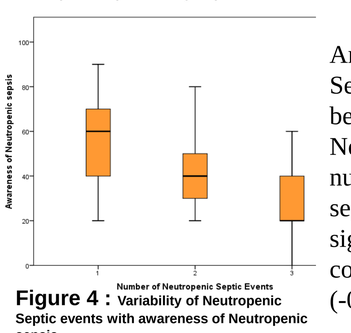

Figure 4 : Variability of Neutropenic Septic events with awareness of Neutropenic sepsis.

Among Neutropenic Septic patients, correlation between the awareness of Neutropenic Sepsis and number of Neutropenic septic events was significant with a negative correlation coefficient (-0.401). (Figure 4)

H0 : There is no association or difference between the incidence of Neutropenic Sepsis in the patients who scored above cutoff (75) and below cutoff in the life habit assessment evaluating overall hygiene of the patients.
H0 is rejected. (Table 4 and 5)

Table 4

Ranks[a]

	Hygiene Level	N	Mean Rank	Sum of Ranks
practice of personal hygiene among Neutropenic Septic Patients	.00	81	41.00	3321.00
	1.00	21	92.00	1932.00
	Total	102		

a. Neutropenic sepsis = Patients who had NS (NS+)

Table 5

Test Statistics[a,b]

	practice of personal hygiene among Neutropenic Septic Patients
Mann-Whitney U	.000
Wilcoxon W	3321.000
Z	-7.046
Asymp. Sig. (2-tailed)	.000

a. Neutropenic sepsis = Patients who had NS (NS+)
b. Grouping Variable: Hygiene Level

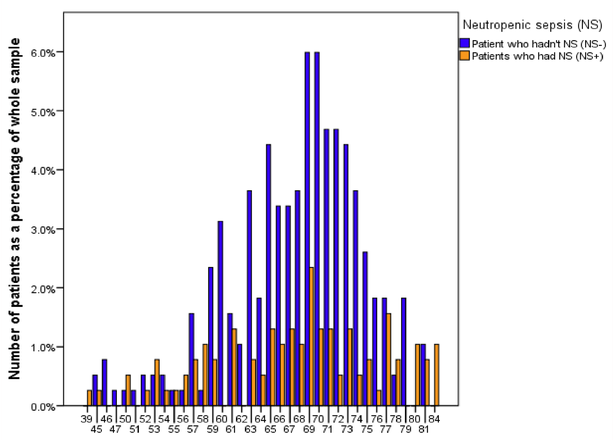

Figure 5 : Occurrence of Neutropenic Sepsis versus practice of personal hygiene among all patients.

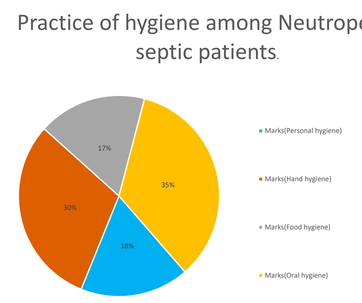

Figure 6 : Practice of hygiene among Neutropenic septic patients.

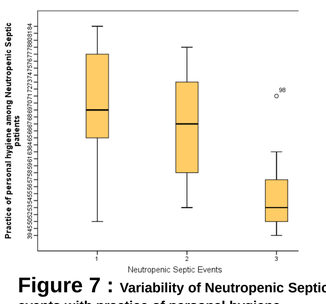

Figure 7 : Variability of Neutropenic Septic events with practice of personal hygiene.

Among Neutropenic Septic patients, correlation between practice of personal hygiene and number of Neutropenic septic events was significant with negative correlation coefficient (-0.402). (Figure 7)

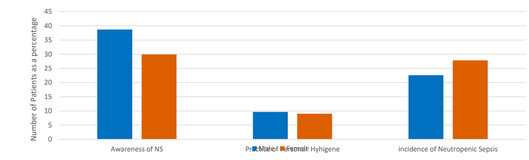

Figure 8 : Scores of Instruments by Gender

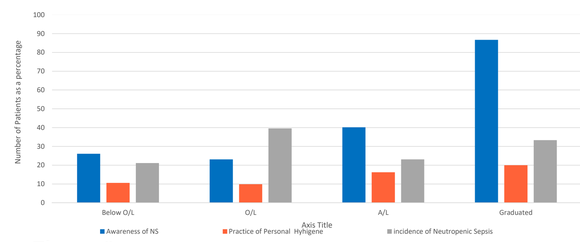

Figure 9 : Scores of Instruments by Educational Level

Table 6 : Occurrence of Neutropenic Sepsis according to common 6 types of malignancy in our sample

Type of malignancy	Number of patients	Patients who had Neutropenic Sepsis	Neutropenic sepsis incidence
Breast cancer	175	143	81.7%
Prostate cancer	27	16	59.2%
Lymphoma	13	11	84.6%
Leukemia	15	14	93.3%
Bowel carcinoma	28	13	46.4%
Uterine carcinoma	15	9	60.0%

Conclusion

1. Out of 384 participants,102 patients had Neutropenic Sepsis ,within past 6 months, which is 26.56% of the sample.
2. Considering the marks obtained by patients and staff for the validated questionnaire on knowledge of Neutropenic Sepsis ,the mean of all patients 45.75(SD=19.32) is very low compared to the mean of the staff 92.25(SD=8.62).
3. The occurrence of Neutropenic Sepsis appears to be increased with decreasing awareness of Neutropenic Sepsis.
4. The occurrence of Neutropenic Sepsis appears to be increased with decreasing practice of personal hygiene.
5. The occurrence of Neutropenic Sepsis in female patients is greater than that in male patients.
6. Less than 21% of patients in each category of educational level scored above the cutoff value in practice of personal hygiene.
7. Among the 6 main cancers identified from the sample, breast cancer is the commonest with a proportion of 45.57%.
8. 8.59% of patients in the sample were unaware of the type of malignancy they have.

Recommendations

- Patient education on Neutropenic sepsis, early detection of signs and symptoms suggestive of neutropenic sepsis and when to seek medical care, by providing written and verbal information before starting and throughout their cancer treatment can reduce the incidence of neutropenic sepsis.
- Patient education on good health practices before starting and throughout their cancer treatment could reduce the incidence of neutropenic sepsis.

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