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A Study to Evaluate the Impact of Pre Met Nurse among Oncology Patients in the Ward to Avoid Cardiac Arrest in Advance at Apollo Cancer Centre, Chennai

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Abstract: ***Introduction: Early recognition of clinical deterioration in patient subjects seems to be one of the main factors associated with the prevention of in - hospital severe adverse events occurred. The implementation of PRE MET Nurses and Teams could reduce in - hospital cardiac arrest (IHCA). Hypothesis: Could PRE MET Team implementation reduces in - hospital Cardiac arrest. Methods: This is a retrospective cohort study and medical database of 105 adult in - patients admitted to wards and who have met the inclusion criteria. Samples were selected following the convenience sampling technique. Data was collected for a period of three months (October to December 2022) after the implementation of the PRE MET nurse role. Data were analyzed using descriptive (Frequency &Percentage) statistics. Results: The findings of the study are as follows, 60 (57%) of the samples were Male, 36 (34%) were between 61 to 70 Years, 83 (79%) of the samples had MEWS scores of 3 and 57 (54%) were shifted to CCU for further management without alerting the MET. On analyzing the trend in alerting MET after the implementation of Pre MET Nurse it was found to be reduced from 10 to 5 in the month of October and November, to 3 in December. Conclusions: Hence the study concludes that the implementation of Pre MET nurses has reduced the number of untoward events in the ward and it has led to early identification of deterioration in patients and proactive management.***

Keywords: PRE Medical Emergency Team Nurse (PRE MET), in - hospital cardiac arrest

1. Background

Survival rates after In - Hospital Cardiac Arrest (IHCA) among patients with advanced cancer are lower when compared to the rest of the population[1]. In a study by Bruckle et al., patients with advanced cancer who had IHCA survived to discharge were 7.4% when compared to 13.4% without advanced cancer. A knowledge of predictors of cardiac arrest in this population would help physicians act in a timely manner to prevent this adverse event[2].

Medical Emergency Team (MET) plays a vital role in the prevention of IHCA. Which Comprise health professionals with critical care expertise. Their main role is to evaluate patients with clinical deterioration in the wards, initiate life - saving treatments, and/or transfers patients to a higher level of care following the process of escalation (eg, Critical care unit [CCU]).

The pre - medical emergency team (pre - MET) tier of Medical Emergency Team (MET) includes extended activation criteria to identify earlier clinical deterioration among patients in the ward, escalate to the admitting and treating consultant/ team and transfer to a higher level of care before IHCA could occur.

Gordon Bingham (2020) conducted a study among the nurses working in pre - Medical Emergency Team on the role of decision - making and escalation of deteriorating patients to the treating consultants, it was elicited that nurses had an awareness of the importance of their role, sense of responsibility, and critical thinking to ensure the safe management and timely escalation of deteriorating patients to the treating consultant[3].

In a month an average of 11 patients were shifted by the Medical Emergency Team (MET) from the ward to a higher level of care due to medical emergencies at Apollo Cancer Center. Hence selected number of Nurses from the critical care unit were trained as pre – MET nurses to identify earlier clinical deterioration among patients in the ward, further escalate to the admitting team, and arrive at a decision either to manage in the ward or transfer to a higher level of care. There is limited understanding of the structure and processes of the role of pre – MET Nurses, hence this study was conducted with the aim to evaluate the Impact of Pre MET nurses on the early identification & Management of critically ill patients in the ward.

2. Methodology

A retrospective descriptive study was conducted for three months (October to December 2022) and 105 adult inpatients who were observed by the Pre MET nurse and who met the inclusion criteria were selected as the study sample using a convenience sampling technique.

Ethical clearance was obtained to conduct the study

The following data were analyzed for 105 adult in patients who were under the observation of the Pre MET nurse

1) Patient Details: Unique Hospital Identification Number, Age, Sex
2) Apollo Speciality Hospital Modified Early Warning Score (ASHMEWS)
3) Was the Medical Emergency Team Called?
4) Was the patient managed in the ward?
5) Was the Patient Electively shifted to CCU for further management?

3. Result

Data was analyzed using descriptive (Frequency & Percentage) statistics.

Table 1: Distribution of samples according to Sex in percentage

Sex	Frequency	Percentage (%)
Male	60	57
Female	45	43

The data in the given table 1 explains that 60 (57%) of the samples were Male and 45 (43%) were females

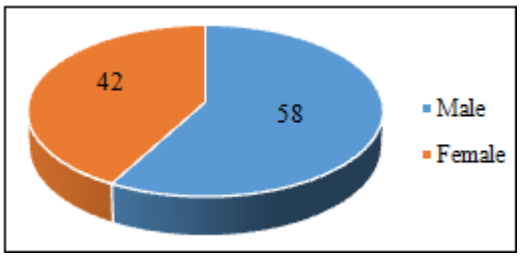

Figure 1: Distribution of samples according to Sex in percentage

Table 2: Distribution of samples according to Age in percentage

Age	Frequency	Percentage (%)
<20 Years	1	1
21 to 30 years	9	9
31 to 40 Years	9	9
41 to 50 Years	9	9
51 to 60 Years	26	24
61 to 70 Years	36	34
> 70 Years	15	14

The data in the given table 2 explains that 1 (1%) of the samples were <20 years, 9 (9%) were between 21 to 30 Years, 9 (9%) were between 31 to 40 Years, 9 (9%) were between 41 to 50 Years, 26 (24%) were between 51 to 60 Years, 36 (34%) were between 61 to 70 Years and 15 (14%) >70 years of age.

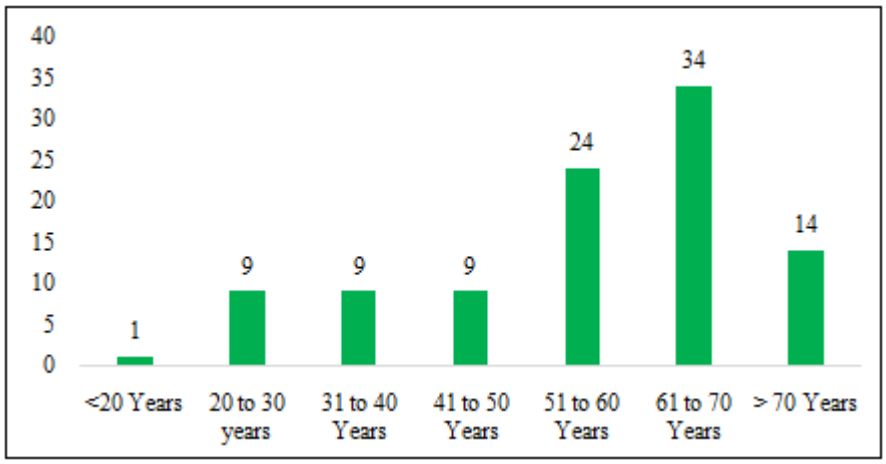

Figure 2: Distribution of samples according to Age in percentage

Table 3: Distribution of samples according to ASHMEWS score in percentage

ASHMEWS Score	Number	Percentage
3	83	79
4	21	20
5	1	1

The data in the given table 3 explains that 83 (79%) of the samples were under the MEWS score of 3, 21 (20%) of the samples were under the MEWS score of 4, 1 (1%) of the samples were under the MEWS score of 5

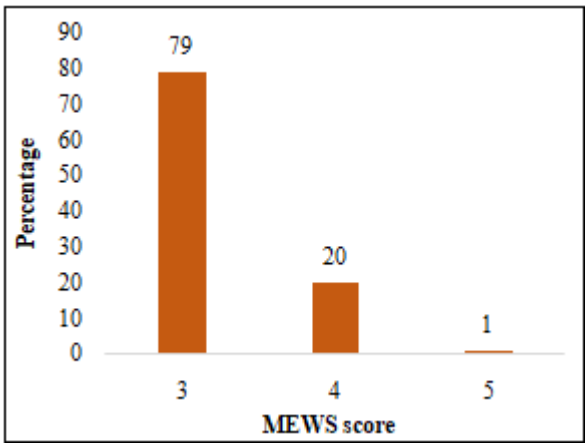

Figure 3: Distribution of samples according to MEWS score in percentage

Table 4: Distribution of samples according to treatment plan in percentage

Treatment plan	Number	Percentage
Managed in Ward	48	46
Shifted to CCU	57	54

The data in the given table 4 shows that 48 (46%) of the samples were managed in ward and 57 (54%) were shifted to CCU for further management

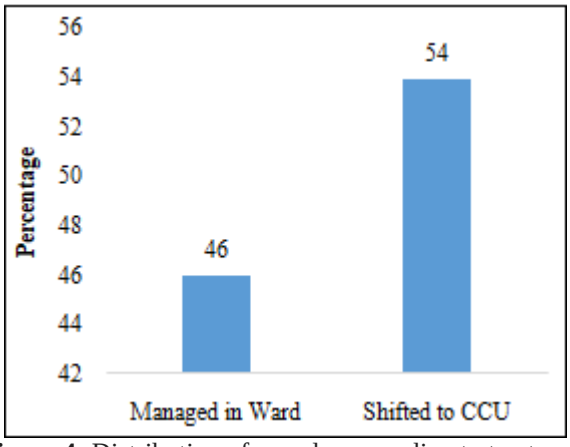

Figure 4: Distribution of samples according to treatment plan in percentage

Table 5: Number of MET alerted before and after the implementation of Pre MET Nurse

Month 2022	No of MET alerted	
	Before	After
January	9	
February	15	
March	10	
April	10	
May	15	
June	Pre MET Nurse implemented in the month of May2022	12
July		9
August		10
September		10
October		5
November		5
December		3

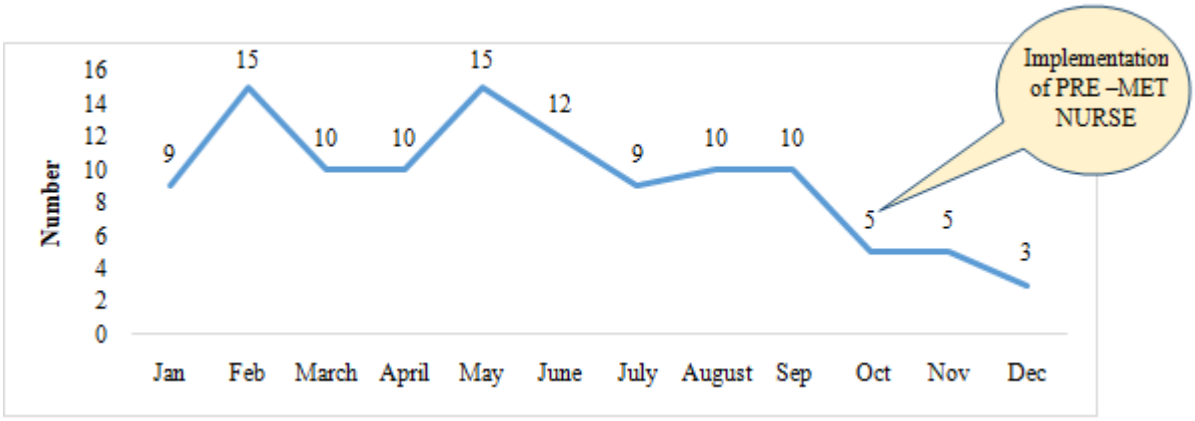

Figure 5: Number of MET alerted before and after the implementation of Pre MET Nurse

4. Discussion

An average of 11 patients were shifted from the ward to a higher level of care due to medical emergencies in a month at Apollo Cancer Center by the Medical Emergency Team (MET). Hence Nurses from the critical care unit underwent training to be efficient Pre Medical emergency team nurses and implementation of the same was done to identify earlier clinical deterioration among patients in the ward, escalate to the admitting team, Manage in the ward, or transfer to a higher level of care.

A retrospective descriptive study was conducted for three months (October to December 2022) with an aim to evaluate the Impact of Pre MET nurses on the early identification & Management of critically ill patients in the ward.105 inpatients who were under the observation of the Pre MET nurse and who met the inclusion criteria were selected as the study sample using a convenience sampling technique. A retrospective analysis of the data was done using descriptive statistical analysis.

The findings of the study are as follows, 60 (57%) of the samples were Male and 45 (43%) were females, 1 (1%) of the samples were <20 years, 9 (9%) were between 21 to 30 Years, 9 (9%) were between 31 to 40 Years, 9 (9%) were between 41 to 50 Years, 26 (24%) were between 51 to 60 Years, 36 (34%) were between 61 to 70 Years and 15 (14%) >70 years of age.
On analyzing the distribution of samples in regard to the MEWS score, 83 (79%) of the samples were under the MEWS score of 3, 21 (20%) of the samples were under the MEWS score of 4, 1 (1%) of the samples were under the MEWS score of 5

Based on the plan of treatment 48 (46%) of the samples were managed in the ward and 57 (54%) were shifted to CCU for further management.

On analyzing the trend inalerting MET after the implementation of Pre MET Nurse it was found to be reduced from 10 to 5 in the month of October and November, to 3 in December.

Hence the study concludes that the implementation of Pre MET nurses has reduced the number of untoward events in the ward and it has led to early identification of deterioration in patients and proactive management.

5. Conclusion

The implementation of Pre MET nurses in the wards will improve the prognosis of the patient and reduce the length of hospital stay. Early identification and proactively managing deteriorating patients in the wards or shifting to a higher level of care gives way to better clinical outcomes.

References

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