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THE ROLE OF NATIONAL EARLY WARNING SCORE (NEWS) IN MEDICAL EMERGENCY - PATIENTS IN INDIAN SCENARIO: A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT INTRODUCTION: The national early warning score is a simple physiological scoring system Suitable for evaluating patients in catastrophic deterioration in busy clinical area and to take timely interventions. **MATERIALS AND METHODS:** A total of 150 medical emergency patients were prospectively studied. NEWS was recorded daily in all patients. Primary end points were ICU admissions and death. **RESULTS:** In 37% patients score not changed, in 57% score was improved, 28% patients reached primary end points. In them 81% shifted to ICU, 19% died. In 38 patients score was 0. P value was <0.0001. **CONCLUSION:** National Early Warning Score (NEWS) is a useful simple physiological scoring system for assessment and risk management of medical emergency admissions. **KEYWORDS:** National early warning score, medical emergency, intensive care unit.

INTRODUCTION: Early assessment and timely interventions are key factors of clinical outcome in people with acute illness.[1-10] Detection of clinical deterioration of medical patients by using physiological parameters reduce the number of pre –ICU resuscitations.[2] Number of reports on acute clinical care have advised the use of so-called 'early warning scores' (EWS)[7] for early detection and timely intervention of critically ill patients.[8-9] Royal college of physicians commissioned group to form NEWS in 2007. NEWS score is adopted to provide standardised track and trigger system for medical causalities presenting to or within hospital, Khammam. It is a simple physiological scoring system suitable for bed side application by using 6 physiological parameters which includes respiratory rate, pulse rate, temperature, oxygen saturations, systolic blood pressure, and level of consciousness. This study was undertaken to study the usefulness of NEWS score in Indian scenario.

METHODS AND MATERIALS: Data collected from a total of 150 consecutive medical emergency patients of age more than 16 yrs. admitted in causality between march-April 2013. Children, pregnant women, patients who were directly admitted in to coronary care unit, ICU were excluded from the study.

PROSPECTIVE DATA COLLECTION: Trained internees, nursing staff and resident doctors collected the data at the time of admission and twice daily while performing their duties. Patient's age, gender, temperature, oxygen saturation and any supplemental oxygen, respiratory rate, heart rate, systolic blood pressure, and level of consciousness according to AVPU score (A for alertness, V for reaction to vocal stimuli, P for reaction to pain, U for unconsciousness) and the length of stay were recorded. The primary end-points were admission to ICU and death.

Every day, the NEWS for each patient recorded on NEWS charts. The component factors that made up the highest NEWS for the 24h period were recorded, Urinary output and blood sugar levels

ORIGINAL ARTICLE

were recorded these has been measured as part of the patient's management. Individual parameter score was combined to derive the aggregate of NEWS score. Aggregate score of 5 or more or individual parameter score more than 3 considered as RED score. According to the score we graded three trigger levels these are low, medium, high score in order to alert clinician assessment. (Table 2)

PHYSIOLOGICAL PARAMETERS	3	2	1	0	1	2	3
Respiratory Rate	≤8		9-11	12-20		21-24	≥25
Oxygen Saturations	≤91	92-93	94-95	≥96			
Any Supplemental Oxygen		Yes		No			
Temperature	≤35.0		35.1-36.0	36.1-38.0	38.1-39.0	≥39.1	
Systolic BP	≤90	91-100	101-110	111-219			≥220
Heart Rate	≤40		41-50	51-90	91-110	111-130	≥131
Level of Consciousness				A			V, P, U
TABLE 1: NATIONAL EARLY WARNING SCORE							

NEWS SCORE	CLINICAL RISK
0	LOW
AGGREGATE 1-4	
RED SCORE (INDIVIDUAL PARAMETER SCORE 3)	MEDIUM
AGGREGATE 5-6	
AGGREGATE 7 OR MORE	HIGH
TABLE 2: NEWS THRESHOLDS AND TRIGGERS	

RESULTS: Data collected from total of 150 medical emergency patients. Patients with incomplete physiological data were excluded. Mean age group was 55yrs. Overall 52.6%were male 47.3% were female. Patients reaching end point were 43(28%) in them 21 (48%) were Female, 22(51%) were male. In them 33(81%) patients shifted to ICU in them 16 (45%) were female, 19 were male (54%). 8(19%) patients died. In 55 (37%) score was not changed. In 38 pts. Score was 0. In 77(51%) score improved.
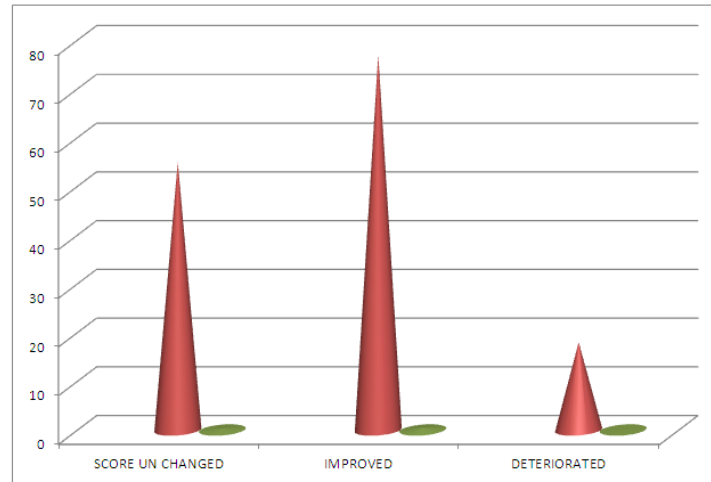
ORIGINAL ARTICLE

FIG. 1: DISTRIBUTION OF NEWSCORE AND CLINICAL OUT COME

News score	Admission To ICU	Death
LOW (1-4)	15 (12.9%)	0
MEDIUM (5-6)	10 (52.6%)	4 (21%)
HIGH (7or more)	9 (60%)	5 (33.3%)
TABLE 3: PATIENTS REACHING PRIMARY END POINT		

AGE(yrs.)	MALE	FEMALE	TOTAL
16 - 24	13(8.6%)	8 (5.3%)	21 (14%)
25 - 34	6 (4%)	6 (4%)	12 (8%)
35 – 44	12 (8%)	9 (6%)	21 (14%)
45 - 54	12 (8%)	10 (6.6%)	22 (14.6%)
55 - 64	11 (7.3%)	12 (8%)	23 (15.3%)
65 - 74	14 (9.3%)	16 (10.6%)	30 (20%)
75 or more	11 (7.3%)	10 (6.6%)	21 (14%)
TOTAL	**79 (52.6%)**	**71 (47.4%)**	**150**
TABLE 4: DEMOGRAPHIC PROFILE OF PATIENTS			

CAUSE	NO. OF PATIENTS
• RESPIRATORY ILLNESS	30 (20%)
• INFECTIOUS DISEASES	26 (17.3%)
• CVS DISORDER	24 (16%)
• AKI	20 (13.3%)
• G.I ILLNESS	17 (11.3%)
• CNS DISORDER	12 (8%)
• OTHERS	21(14%)
TABLE 5: CAUSES OF CASUALITY ADMISSION	

ORIGINAL ARTICLE

DATA ANALYSIS AND STATISTICS: Statistics were generated using spss software (version 20.0), relative risk ratios were calculatedby using cross tabulations. Relative risk is 0.6488 95 %, CI - 0.5651 to 0.7450, P Value is < 0.0001.

DISCUSSION: The NEWS is an important part of a risk management strategy that is simple to implement. When any patient scores NEWS of four or more, consultant senior physician should be informed immediately. The emergency staff should immediately reevaluate the patient and treatment plan. Using previously published scoring criteria[8,9] this study has been demonstrated that raised New score has been associated with increased mortality rate. High scores were more likely to occur early during admissions falling scores in patients suggests benificial effects of treatment.

News could therefore act as another method of assesing the efficiency of medical interventions.Other scoring systems like APACHE II score and (MDM score) mortality prediction model,[2] The simplified (APS) Acute Physiology Score have only been used for patients with acute renal and congestive heart failure and used to estimate the risk of death for patients in intensive care, and patients with M.I.[11-1] SAPS.R has been used to predict the outcome of ICU patients but not medical ward patients.[2,12] The available scoring system not appears to be suitable for bed side Assessment of emergency along with medical ward patients in a routine fashion.

NEWS is likely to present a more versatile tool in this context, more sensitive than most currently used systems.[1] News will help emergency medical and nursing staff to priorities their patients and to give them confidence to call for expert advice when they are dealing with these patients.

CONCLUSION: National Early Warning Score (NEWS) is a useful simple physiological scoring system for assessing and risk management of medical emergency admissions in an Indian scenario and should be considered as an aid to clinical assessment and judgement.

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ORIGINAL ARTICLE

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