Clinical Predictors of Physiological Deterioration

And Subsequent Cardio-respiratory Arrest Among Critically Ill Patients

Thesis
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M.B.B.Ch.
In partial fulfillment of Master Degree

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2010

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OBJECTIVES: a) To study the ability and the feasibility of Modified Early Warning Score (MEWS) as a screening tool to predict the high risk critically ill patients who may develop cardio-respiratory arrest.
b) To compare between MEWS and the "Simplified Acute Physiology Score II" (SAPS II) regarding the sensitivity, specificity and applicability ease.
METHOD: MEWS and SAPS II-Expanded were applied to 100 newly admitted patients to ICU. MEWS was calculated daily for each patient in the ICU to determination the ScoreMax (90 days as the end point). Receiver operator characteristic (ROC) curve and diagnostic validity test for MEWS & SAPS II were calculated and compared.
RESULTS: the MEWS score max grade of **8** or more was associated with the highest rate of cardio respiratory arrest event (sensitivity 78.9%, specificity 93.5, accuracy 88.00%, area under ROC curve AUC =0.928). For SAPS II-Expanded grade of **50** or more was associated with the highest rate of cardio respiratory arrest event (sensitivity 71.1%, specificity 100%, accuracy 89.00%, AUC =0.872). The mean and SD values of the SBP, RR and AVPU score in the MEWS ScoreMax had a statistically significant difference between the arrested and the non arrested group of patients (p value < 0.05).
CONCLUSION: MEWS score is a useful screening tool to predict the high risk critically ill patients who may develop cardio respiratory arrest event. It has more sensitivity but less specificity than SAPS II and the accuracy of both is almost the same. It is easier, faster, simpler and cheaper than SAPS II therefore it should be recommended in clinical practice.

KEY WORDS: Early, Warning, Score, MEWS, Acute, Physiology, SAPS, predictors, arrest, critical, ICU.