

National Early Warning Score 2 and Charlson Comorbidity Index: Predictors of Mortality in COVID-19 Hospitalization

Rationale: National Early Warning Score 2 (NEWS2) is a simple aggregate scoring system that allocates scores to vital signs and mentation. Charlson Comorbidity Index (CCI) predicts mortality by classifying and weighting age and comorbid conditions.

In this retrospective study, we reviewed the clinical profiles of COVID-19 infected individuals to identify risk factors for mortality.

Methods: 478 charts of COVID19 PCR-positive adult inpatients admitted to University Hospital of Brooklyn between March 2020 and June 2020 for COVID-19 related symptoms were reviewed.

EMR review included comorbid conditions, vital signs at presentation, length of stay and medications administered.

CCI and NEWS2 were calculated for each patient.

Bivariate analysis for possible predictors of mortality was performed. Logistic regression models were constructed

Results: Of the 478 cases reviewed, 195 patients did not survive (40.7%). In survivors, mean CCI was 3.8 ± 2.5 compared to 4.6 ± 2.2

in non survivors. Mean NEWS2 was 6.2 ± 2.9 among survivors. Non survivors had a mean NEWS2 of 8.5 ± 3.2 , $P < 0.001$. A

logistic regression model predicting death from age, BMI, race, sex, days of immunosuppression, total steroid use, CCI and NEWS2 showed that NEWS2 is an independent predictor of mortality whereas CCI is not. The odds to die from COVID-19 were higher with older age and male sex.

Conclusion: Older men with higher NEWS2 are more likely to die from COVID-19.

Charlson Comorbidity Index, did not serve as a predictor of mortality from COVID-19 in hospitalized patients.

Obesity, steroid use and immunosuppression were not shown to affect mortality from COVID-19 in our study. Performing NEWS2 as part of the initial assessment for patients presenting to emergency room with COVID-19 symptoms supplements the clinical judgement in triaging patients and in proper disposition.