Category :**Sepsis: biomarkers**

**A95 -** ***News2 predicts severity of underlying inflammatory response and outcome in covid-19 patients.***

**MT Howard [1] ; O Watson [2] ; JC Zaldua [2] ; S Pillai [2] ; J Whitley [2] ; M Lawrence [3] ; K Hawkins [3] ; O Guy [3] ; PA Evans [2]**

*[1]Welsh Centre for Emergency Medicine Research, Emergency Department, Swansea, United Kingdom, [2]Welsh Centre for Emergency Medicine Research, Swansea, United Kingdom, [3]Swansea University, Swansea, United Kingdom*

## Introduction:

COVID-19 is a severe respiratory disease associated with a marked inflammatory response. Clinical methods of assessing severity of disease, including National Early Warning Score 2 (NEWS2), have been shown to predict severity in COVID-19[1]. However, little research has been undertaken comparing NEWS2 to underlying inflammatory processes. In this study, we assessed whether inflammatory markers taken at presentation to the Emergency Department could predict and mortality in COVID-19 patients.

## Methods:

Whole blood samples were taken at admission to the emergency department for procalcitonin, fibrinogen, CRP, Von Willebrand Factor (vWF), IL-6 and TNFα. NEWS2 was also recorded on admission. Levels of inflammatory markers were retrospectively compared to NEWS2 scores and mortality outcomes.

## Results:

95 patients positive for COVID-19 were included. NEWS2 values >5 were associated with higher CRP (131.5±87.9 vs 86.4±106.5, p=0.03), IL-6(71.9±111 vs 43.4±99, p=0.007), and vWF(334.1±83.3 vs 296.3±93.4, p=0.04). The trend of increasing inflammatory markers was also shown in patients who died, significantly so for IL-6(44.4±54.97 vs 18.8±48.36, p=0.035). NEWS2 was also shown to be significantly higher in patients who died (7.8±2.2 vs 4.3±2.8, p=<0.01).

## Conclusion:

NEWS2 predicted the severity of underlying inflammatory response. All inflammatory markers showed a marked increase with severity and mortality, most significant with IL-6. This suggests NEWS2 and inflammatory markers may predict severity and mortality in COVID-19 patients. Further research is required to evaluate these mechanistic changes in inflammatory response.

## References:

1. Kostakis I et al. The performance of the National Early Warning Score and National Early Warning Score 2 in hospitalised patients infected by the severe acute respiratory syndrome coronavirus2 (SARS-CoV-2). Resuscitation. 2021 Feb; 159:150-157.