Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Resuscitation

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Letter to the Editor

NEWS can predict deterioration of patients with COVID-19

To the Editor,

The COVID-19 epidemic is currently spreading around the world, with more than two million people infected and more than 190,000 dead.[1] In order to early identify the deterioration in patients with COVID-19 and allow timely escalation, we evaluated the ability of the National Early Warning Score (NEWS)[2] to predict the deterioration of patients with COVID-19.

A prospective study was conducted on 200 patients with COVID-19 in Xiangya-ward of west campus of Union Hospital of Tongji Medical College of Huazhong University of Science and Technology. The vital signs, blood oxygen saturation and other parameters were collected at the time of admission. The data included demographic data, clinical characteristics, clinical classification of COVID-19, and serious events (SEs) (death or unplanned transfer to Intensive Care or initiation of non-invasive ventilation) during the whole hospitalization.[3] The area under the receiver operating characteristic (AUROC) was used to evaluate the ability of National Early Warning Score (NEWS) and a NEWS plus age score (3 point are given for age $\geq$65 years old)[4] to predict the deterioration of patients admitted to COVID-19.

In this study, the mean age of 200 patients was 62.13 $\pm$ 12.61years old, 129 patients were over 60 years old, and the average length of stay in hospital was 28.76 $\pm$ 16.03 days. As to the severity classification: 27 (13.5%) patients were classified as ordinary cases, 163 (81.5%) as severe cases and 10 (5.0%) as critical cases. Nobody died within 72 h of admission, 7 patients (3.5%) died after 72 h of admission, 7 (3.5%) had unplanned transfers to ICU, 11 (5.5%) were non-invasively ventilated (including 5 surviving patients), as shown in Fig. 1. For patients with a NEWS of 7 or more 6 (28.6%) suffered SEs: 3 died, 6 were ventilated.

For NEWS and NEWS + age (Fig. 1) the specificity for SEs was 0.574 vs. 0.511; the sensitivity was 0.917 vs. 1.000 and the AUROC was 0.837, 95%CI 0.748–0.943, vs. 0.846, 95%CI 0.735–0.939; P = 0.5233; the Youden index was 0.491 vs. 0.511.

The study of Liao et al. recommended the use of NEWS plus age scoring system for disease change recognition in patients with COVID-19, and provided guidance for the triage of patients with COVID-19.[4] This study shows that the ability of NEWS plus age to predict the deterioration of patients admitted to COVID-19 is good as NEWS.

Although further studies with large sample size are needed to evaluate the prediction ability of NEWS on the deterioration of patients with COVID-19, this study still provides a good reference for clinical application of NEWS. By monitoring the vital signs of patients, early and accurate identification of the deterioration of patients admitted to COVID-19 can not only improve the prognosis of patients, but also reduce the burden of medical staff in a tense medical environment.

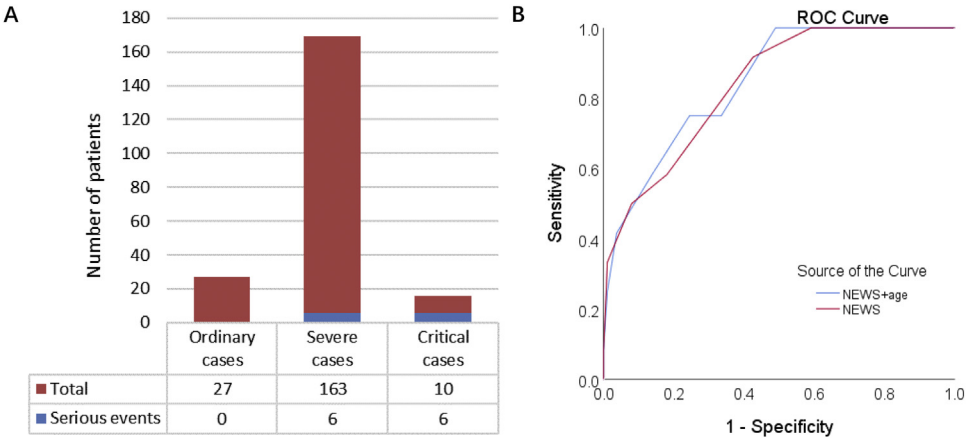

Fig. 1 – (A) Serious adverse events distribution of patients with different type of diagonostic scheme; (B) the receiver operator characteristics curves (ROC) for the NEWS, NEWS + age for serious.

Authors' contribution

Lingli Peng: Conceptualization, Methodology, Software. Xiaobei Peng: Data curation, Writing - Original draft preparation. Lei Zhang: Data curation, Software. Zhen Luo: Software, Validation. Christian P. Subbe: Writing - Reviewing and Editing. All authors commented on previous versions of the manuscript and read and approved the final manuscript.

Conflict of interest

The authors declare that they have no competing interests.

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