

## National early warning score at CICU discharge as a predictor for unexpected ICU readmission

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**Background:** Unexpected intensive care unit (ICU) readmission was known to related with poor clinical outcomes. We sought to investigate whether NEWS could be predicted early ICU readmission after cardiac intensive care unit (CICU) discharge.

**Methods:** The consecutive patients admitted to CICU between 2017 and 2019 at a university hospital via emergency department were enrolled. The National Early Warning Score (NEWS) on the morning of cardiac ICU discharge was recorded.

**Results:** One hundred fourteen patients (6.2%) were expired during index CICU admission. Among total of 1668 patients who were undergone successful CICU discharge, 66 patients (4.0%) had unexpectedly transferred to ICU within 48 hours after CICU discharge. In the patients with ICU readmission, there had higher NEWS at CICU discharge, longer initial ICU stay of length, and poorer in-hospital mortality than those without ICU readmission. ( $p < 0.001$ ,  $p = 0.001$ , and  $p < 0.001$ ) Among all of ICU readmission, only 38 patients (58%) were survived to discharge. The AUROC for NEWS at CICU discharge on ICU readmission was 0.852. (95% CI 0.804 - 0.900,  $p < 0.001$ )

**Conclusions:** The NEWS at the time of CICU discharge is robust predictor for unexpected ICU readmission and clinical outcomes. The NEWS might be practical and easily calculable marker for determining ICU discharge.

