E-Poster

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Predicting The Risk Of Pressure Injuries in Critically Ill Patients With Community-Acquired Pneumonia – External Validation of the PRINCOVID Score

Topic: Specific Target Groups (Children, Women, Elderly, Athletes, Musicians, Refugees, Ethnic Groups, Workers, and Others)

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BACKGROUND

Pressure injuries (PI) are a significant clinical problem. Critically ill patients have a higher risk of developing PI, especially in intensive care units (ICU). Pressure injuries prevention is of utmost importance. Several tools predict PI risk, the Braden scale being the most widely used. However, the Braden scale shows a low positive predictive value in critically ill COVID-19 patients. The PRINCOVID score was thus developed (2023), with higher accuracy for identifying the risk of PI in critically ill COVID-19 patients, using only four parameters: sex, hypertension (comorbidity), haemoglobin and albumin levels at ICU admission. We now aimed to perform an external validation of the PRINCOVID score.

METHODS

Retrospective cohort study (January/2017–December/2024) in the ICU of a tertiary-care center. We included patients admitted in the ICU with severe community-acquired pneumonia, an ICU stay > 48h, and age >18 years. Patients with SARS-CoV-2 were excluded. For each patient, four parameters were collected and scored as follows: male sex (4 points); hypertension (2 points); haemoglobin < 8g/dL (6 points) or between 8-10g/dL (4 points); and albumin7). This classification, along with the median score, was compared between patients with and without PI. The area under the ROC curve (AUC-ROC) for the PRINCOVID score was calculated and compared with that of the Braden scale.

RESULTS

A total of 439 patients were included: 295 males (67%), mean age (64 ± 14; range: 20–93 year). Median ICU stay was seven days (IQR: 3–11). PI prevalence was 28% (n=124, of which 35% [n=43] had multiple PI), more frequently in the sacral region (23%). Patients with PI had significantly higher PRINCOVID scores (median[IQR] 9 [6.5–11.5] versus 7 [5–9]; $p < 0.001$). Categorization labelled 301 patients as "at risk" and 138 patients as "high risk". PI incidence was more than six times higher in the "high risk" group (37.5% [n=113] vs 5.8% [n=11], $p < 0.001$). The PRINCOVID AUC-ROC (95% CI) showed a fair discriminative power for PI, with an AUC-ROC (95% CI) of 0.766 (0.706–0.801), which was significantly higher than the Braden scale's AUC-ROC of 0.632 (0.565–0.700) (p=0.002).

CONCLUSION

This external validation study confirms the PRINCOVID score is more accurate than the Braden scale in predicting PI in critically-ill patients with severe community-acquired-pneumonia. With only four easily obtainable parameters, it demonstrates fair discriminative power and may be a valuable tool to ICU clinical practice for early PI risk stratification.

Statement of Disclosures

None

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