

# Associations between severe influenza-complicated thromboembolism events, intensive care unit stays and mortality, and associated risk factors: a retrospective cohort study

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## Abstract

**Background:** Compelling evidence suggests associations between influenza infection and thromboembolism (TE) events. Risk factors related to the outcomes of severe influenza-complicated TE in intensive care unit (ICU) patients remain unknown. **Methods:** A retrospective cohort study was conducted, recruiting consecutive patients with thromboembolism (TE) events admitted to the intensive care unit (ICU) between December 2015 through December 2018 at our institution in Taiwan. A study cohort of patients with severe influenza (n=108) and a control group of patients with severe community-acquired pneumonia (n=192) were included. Associations between complicated TE, length of ICU stay, 90-day mortality were evaluated. **Results:** Thromboembolism events prevalence was significantly higher in ICU patients with severe influenza than in ICU patients with severe CAP (21.3% vs. 5.7%, respectively;  $p<0.05$ ). The ratio of mechanical ventilation use, length of mechanical ventilation use, ICU stay and 90-day mortality increased significantly in ICU patients with severe influenza after developing TE compared with patients without TE (all  $p<0.05$ ). Influenza infection and hypertension are the risk factors for thromboembolic events in patients with severe influenza ( $p<0.05$ ). Besides, complicated TE and severity of APACHE II score are risk factors for 90-day mortality in ICU patients with severe influenza ( $p<0.05$ ). **Conclusions:** ICU patients with severe influenza and complicated TE have an increased risk of extended ICU stay and 90-day mortality compared to patients with severe CAP. Risk is significantly increased in patients with higher APACHE II score. this study may help define better strategies for early recognition and prevention of severe influenza-complicated TE.

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