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Peripheral blood leukocyte telomere length is associated with survival of sepsis patients

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Shorter peripheral blood leukocyte telomere length is strongly associated with worse survival and more severe ARDS in critically ill patients with sepsis http://bit.ly/2mWHKxf

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ABSTRACT Shorter peripheral blood leukocyte (PBL) telomere length (TL) has been associated with poor outcomes in various chronic lung diseases. Whether PBL-TL is associated with survival from critical illness was tested in this study.

We analysed data from a prospective observational cohort study of 937 critically ill patients at Vanderbilt University Medical Center (VUMC). PBL-TL was measured using quantitative PCR of DNA isolated from PBLs. Findings were validated in an independent cohort of 394 critically ill patients with sepsis admitted to the University of California San Francisco (UCSF).

In the VUMC cohort, shorter PBL-TL was associated with worse 90-day survival (adjusted hazard ratio (aHR) 1.3, 95% CI 1.1–1.6 per 1 kb TL decrease; p=0.004); in subgroup analyses, shorter PBL-TL was associated with worse 90-day survival for patients with sepsis (aHR 1.5, 95% CI 1.2–2.0 per 1 kb TL decrease; p=0.001), but not trauma. Although not associated with development of acute respiratory distress syndrome (ARDS), among ARDS subjects, shorter PBL-TL was associated with more severe ARDS (OR 1.7, 95% CI 1.2–2.5 per 1 kb TL decrease; p=0.006). The associations of PBL-TL with survival (adjusted HR 1.6, 95% CI 1.2–2.1 per 1 kb TL decrease; p=0.003) and risk for developing severe ARDS (OR 2.5, 95% CI 1.1–6.3 per 1 kb TL decrease; p=0.044) were validated in the UCSF cohort.

Short PBL-TL is strongly associated with worse survival and more severe ARDS in critically ill patients, especially patients with sepsis. These findings suggest that telomere dysfunction may contribute to outcomes from critical illness.