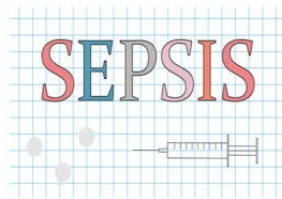

Association of Active Renin Content With Mortality



Sepsis affects 1.7 million patients annually, with a mortality rate of 10–50%. Current biomarkers like WBC count, lactate, and blood cultures have variable impacts on prognosis. Recent evidence suggests that circulating renin is proposed as a more predictive biomarker for septic shock outcomes than lactate.

The Vitamin C, Thiamine, and Steroids in Sepsis (VICTAS) trial is a randomised, double-blind, adaptive-sample size, placebo-controlled trial carried out at 43 hospitals in the United States. The study investigates the renin–angiotensin system (RAS) in septic patients. The study hypothesised that dysfunction in RAS, characterised by elevated active renin, Ang-(1-7), and ACE2 activity along with decreased Ang-II and ACE activity, would be linked to mortality in septic patients.

Study patients received intravenous vitamin C (1.5 g), thiamine hydrochloride (100 mg), and hydrocortisone sodium succinate (50 mg) or corresponding placebos every 6 hours for 4 days. Samples collected on day 0 (within 24 hours of respiratory failure, septic shock, or both) and day 3 were analysed to assess the RAS. The analysis included multivariable adjustments for age, sex, VICTAS treatment arm, systolic blood pressure, Sequential Organ Failure Assessment Score, and vasopressor use.

High baseline active renin values were linked to increased 30-day mortality. Patients with decreased renin had better survival compared to those with increased renin. However, Ang-(1-7), ACE2 activity, Ang-II, and ACE activity did not exhibit this association. Mortality was reduced in patients with renin above the median on day 0 who received the VICTAS intervention, but this effect was not observed on day 3. No consistent mortality patterns related to the renin–angiotensin system were observed with the VICTAS intervention.

Overall, these findings show that in critically ill patients with sepsis, higher baseline serum active renin levels were strongly linked to mortality. Additionally, an increased relative activation of circulating renin from day 0 to day 3 was associated with a higher risk of death.

Source: [Critical Care Medicine](#)

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