Clinical significance of controlling nutritional status score for predicting short-term clinical events in takotsubo syndrome: a multicenter study

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Background: The Controlling Nutritional Status (CONUT) score is well known as a marker of nutritional status. Previous studies have reported that CONUT score could predict a prognosis of acute or chronic heart failure, and infective endocarditis. Takotsubo syndrome (TTS) is said to have a relatively good prognosis, but some patients have a bad turning point in hospital stay. Lower systolic blood pressure on admission, history of diabetes mellitus, and β-blocker use before admission have been reported as predictors of in-hospital cardiac complications. However, the prognostic utility of CONUT score in TTS is unclear. The aim of study was to evaluate duration of hospital stay and short-term clinical events with CONUT score in TTS.

Methods: Seventy-nine TTS patients who were admitted to 3 medical centers in Japan between January 2011 and October 2019 were enrolled. The average age was 71.8±11.5 years old, and the prevalence of female sex was 81%. The CONUT score was calculated based on the serum albumin, total lymphocyte and total cholesterol on admission. We retrospectively investigated the association between the short-term clinical events and CONUT score. The duration of hospital stay was defined as the primely outcome, and all cause death and congestive heart failure in hospital stay as the secondary outcome.

Results: The average CONUT score was 3.7±3.0. A positive correlation was found between the CONUT score and the duration of hospital stay ($r=0.56$, $p<0.01$). Twenty (25.3%) patients suffered from clinical events (all cause death and congestive heart failure in hospital). Those patients with clinical events had significantly higher the CONUT score than those without (all cause death, 7.2±2.6 vs. 3.5±2.9, $p<0.01$, congestive heart failure, 5.3±3.4 vs. 3.3±2.8, $p=0.02$, composite clinical events, 5.8±3.2 vs. 3.0±2.6, $p<0.01$). ROC curve analysis revealed that the optimal cut-off value of the CONUT score for the prediction of composite clinical events was 4.0 (AUC: 0.75, sensitivity: 80%, Specificity: 64%). The patients with CONUT score of 4 or more (high COUNT score) were more prevalent in patients who experienced composite clinical events than in those who didn't (80% vs. 35.6%, $p<0.01$). The patients with a high CONUT score had a longer hospital stay and higher occurrence of composite clinical events than those with CONUT score less than 4 (respectively, 27.2±19.1 days vs. 13.8±8.3 days, $p<0.01$, 25.3% vs. 9.5%, $p<0.01$).

Conclusions: The CONUT score in TTS patients was strongly associated with the duration of hospital stay and clinical events in hospital. The CONUT score is a simple indicator that can be calculated with only three factors. Therefore, the CONUT score on admission may be useful for a predictor of short-term clinical events in TTS patients.

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