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Accumulative impact of poor nutrition and frailty on 1-year mortality among acute decompensated heart failure patients

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Background: Several studies have proved that both poor nutrition (PN) and Frail are associated with poor prognosis among heart failure patients. However, it has not been fully revealed whether PN and frail could have impact on prognosis accumulatively.

Purpose: The purpose of the present study was to evaluate the impact of nutritional and Frailty status on 1-year mortality among hospitalized patients with acute decompensated heart failure (ADHF).

Methods: Study subjects comprised of 315 hospitalized patients with ADHF. To evaluate the nutritional and Frailty status, we calculated the controlling nutritional status (CONUT) score and the Study of Osteoporotic Fractures (SOF) index at hospital admission. PN and Frailty were defined as the CONUT score ≥5 and SOF index ≥2, respectively.

Results: z Sixty-nine subjects (21.9%) were died within 1-year. PN and Frailty were observed in 33.3% and 55.6% of study subjects, respectively. Both PN and Frailty were similarly related to the 1-year mortality by univariate cox regression analysis (Hazard Ratio (HR) 2.43, 95% confidence interval (CI) 1.51–3.91, p=0.0003: HR 3.13, 95% CI 1.83–5.66, p<0.0001, respectively).

Study subjects were classified into 4 groups according to the nutritional and frailty status: control (normal nutrition without Frailty, n=110), PN alone (PN without Frailty, n=30), Frailty alone (Frailty without PN, n=100), and PN + Frailty (PN with Frailty, n=75). The Kaplan-Meier event curves for 1-year all-cause mortality illustrated that subjects with PN + Frailty had a significantly higher mortality than in subjects with control, PN alone and Frailty alone (log rank p=0.0001, 0.0180, 0.0070, respectively).

As well as, cox regression analysis revealed that PN + Frailty showed significantly higher mortality than control, PN alone and Frailty alone. (HR 5.33, 95% CI 2.75–11.1, p<0.0001: HR 2.99, 95% CI 1.26–8.78, p=0.011: HR 2.07, 95% CI 1.21–3.61, p=0.008, respectively). Moreover, multivariate cox regression analysis also revealed that PN with Frailty was independently associated with 1-year mortality even after adjustment for age, body mass index, systolic blood pressure, and chronic kidney disease. (HR 3.40, 95% CI 1.69–7.32, adjusted p<0.001)

Conclusions: The combination assessment consisted with nutrition and frailty could identify poor prognosis patients with ADHF.

Kaplan-Meier curve for 1year mortality