Introduction: Serum concentration of big endothelin-1 (ET-1) has prognostic significance in heart failure. However, its prognostic value in sudden cardiac death has not been well-characterized. The present study is to investigate the association between big endothelin-1 and major adverse cardiovascular events in heart failure patients.

Methods: A total of 187 patients with heart failure in Asian HF study were included in the present study, and followed up till the end of January 2016. The patients were divided into three groups according to the levels of serum big endothelin-1: the group 1 (0.25-0.44 pmol/L, n=61), the group 2 (>0.44-<0.83 pmol/L, n=63), and the group 3 (>0.83 pmol/L, n=63). The primary endpoint was sudden cardiac death, secondary endpoint was composites of heart transplantation and all cause mortality.

Result: During a mean follow-up period of 18.49 ± 9.67 months, 22 patients (11.8%) experienced SCD. 63 patients (16.8%) died or underwent heart transplantation. As determined by Kaplan-Meier analysis, the risk of composited secondary endpoint increased according to serum big endothelin-1 level (41% vs 57.1% vs 71.0%, Group 1-Group 3, P <0.001). In multivariate COX regression models, big- endothelin-1 was an independent risk factor for heart transplantation and all cause mortality (HR 3.130, 95%CI: 1.320-7.421, P = 0.010, Group 2 vs Group 1; HR 5.339, 95%CI: 2.303-12.376, P < 0.001, Group 3 vs Group 1). As for SCD, only group 2 but not group 3 held higher risk of SCD (HR 4.648, 95%CI: 1.294-16.694, P = 0.019, Group 2 vs Group 1).

Conclusion: Serum big endothelin-1 level showed good predictive efficacies for heart transplantation and all cause mortality. When big endothelin-1 exceeds a certain level, non-cardiac deaths increase.