Cancer and takotsubo syndrome: clinical features, outcome, and inflammatory patterns. Results from a multicentre prospective registry

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Aims: Cancer represents one of the major determinants of prognosis in patients with Takotsubo Syndrome (TTS). Aim of this study was therefore to compare clinical features, short- and long-term outcome and inflammatory pattern among TTS patients with history of cancer.

Methods and results: 412 consecutive patients with TTS were enrolled in a multi-centre prospective registry from July 2007 to February 2021. Clinical features, in and out of hospital MACE, laboratory and imaging data were collected. A sub-analysis evaluating serum interleukins levels among 12 patients with cancer vs. a propensity score matched cohort was performed. Prevalence of history of cancer was 12% (N = 51 pts). Patients with history of cancer were older (77 vs. 72 years, P = 0.01), with a higher percentage of male (23.5% vs. 8.8%, P = 0.01). Diabetes, dyslipidemia, and obesity were more prevalent in patients with cancer (29% vs. 22%, 49% vs. 42%, 25.5% vs. 18.5%, P = 0.01 respectively), while a similar prevalence was found for hypertension and smoke. Left ventricular ejection fraction (LVEF) at admission and discharge was lower in patients with history of cancer (33% vs. 37%, 44% vs. 50%, P = 0.03 respectively). Patients with cancer showed higher incidence of in hospital events (41% vs. 33%, P = 0.01) mainly driven by cardiogenic shock (21.5% vs. 8.5%, P = 0.01), in hospital death (13.7% vs. 4.7%, P = 0.01), left ventricular thrombi (9.8% vs. 3.3%, P = 0.01) and ventricular arrhythmias (13.7% vs. 7.4%, P = 0.01). The long-term mortality was higher in patients with history of cancer (31.3% vs. 11.3%, P = 0.01). A distinct inflammatory pattern was found in cancer patients: at admission there were higher levels of IL-2 and VEGF levels (IL-2 3.3 vs. 0.7 pg/ml, P = 0.05, VEGF 476.3 vs. 249.5 pg/ml, P = 0.03); at discharge IL-4 was lower (1.17 pg/ml vs. 2.49 pg/ml, P = 0.04) while VEGF remained higher in subjects with TTS and cancer (406 vs. 128 pg/ml, P = 0.03).

Conclusions: Cancer patients with TTS are characterized by different clinical features, epidemiological characteristics, worse prognosis and higher long-term mortality when compared to patients with TTS without history of malignancy. A distinct inflammatory pattern can be found in this subset of TTS patients.