Reply to "Low prevalence of diabetes with chronic complications in patients with Takotsubo syndrome"

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To the Editor:
We thank Dr. Madias for his interest in our manuscript regarding the impact of obesity on the in-hospital outcomes in takotsubo cardiomyopathy (TCM) patients. In table 2 of our paper, we compared the frequency of comorbidities in non-obese vs. obese TCM patients. We found a higher frequency of diabetes mellitus (DM) including both uncomplicated (37.2% vs. 15.3%) and complicated (4.5% vs. 1.9%) cases in the obese TCM cohort. Although the propensity-matched analysis did show a lower frequency of uncomplicated (37.2% vs. 38.4%) and complicated (4.5% vs. 5.1%) DM in the obese TCM cohort, the differences were statistically non-significant to establish any protective role of DM in the setting of obesity.

We observed a cumulative DM frequency of 19.5% (17.4% uncomplicated & 2.1% complicated) in the TCM cohort, which is higher than the collective diagnosed and undiagnosed DM prevalence of 9.4% in the general US population reported by the CDC, 12% to 14% by using the National Health and Nutrition Examination Survey (NHANES) data, and a global adult DM prevalence of 8.5% depicted by WHO. However, it is important to note that the data analyzed in the NIS is only for hospitalizations, meaning sicker patients get hospitalized. Thus evidently, TCM cohort carries overall a higher DM burden compared to the general US population. Although there was no significant difference ($P > 0.05$) in the DM with chronic complications between the obese vs. non-obese TCM groups we, nonetheless, agree with Dr. Madias’s observation that the complicated DM frequencies were lower in the obese (4.5%) and the non-obese (1.9%) TCM cohorts than one would expect. Correspondingly, our preliminary analysis of the 2010 to 2014 NIS did show overall higher frequencies of DM with chronic complications in obese (9.5%) and non-obese (3.2%) cohorts regardless of TCM.

The limitation of underreporting of chronic illnesses and resultant complications in the Nationwide (National) Inpatient Sample (NIS) has also been well acknowledged in past. The conceivable theories behind that are lack of depiction of outpatient DM-related visits, administrative data coding errors, inability to clearly quantify diet-controlled DM in the NIS, and likelihood of secondary outcomes being reported higher as the cause of discharges rather than the DM itself.

The proposed protective effect of DM in development of TCM certainly sounds intriguing; however, it was not in the scope of our paper to address this question with conclusive and supportive results, especially when previous studies have shown adverse outcomes being imposed by DM on the TCM outcomes. However, with more studies like ours denoting lower complicated DM prevalence; one can definitely hypothesize to assess the counteractive role of autonomic neuropathy and other chronic macro/microvascular complications in diabetics in blunting the catecholamine-induced sympathetic surge and myocyte damages. With a paucity of prospective clinical data, inconclusive consensus and lack of propensity-matched retrospective data comparing the incidence and outcomes of TCM with and without DM and its sequel, the jury is still out whether TCM and DM have a mutually inclusive or exclusive effect on each other.

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