Abstract 3 Figure 1

(a composite of cardiovascular death, stroke, heart failure admission, infective endocarditis) was significantly higher in the DM-AS group than the isolated-AS group (Hazard Ratio: 3.35; 95% confidence interval: 0.97–11.6; p=0.02).

Conclusion We compared clinical outcomes in severe AS patients with and without T2DM and investigated myocardial recovery in energetics, perfusion and contractile function after AVR. Diabetes was associated with increased morbidity and mortality after AVR. We showed here for the first time that the collective impact of T2DM and AS on the myocardium aggravates energetic impairment, coronary microvascular dysfunction and myocardial contractile dysfunction. While myocardial recovery following AVR was associated with similar improvements in perfusion and contractile function in severe AS patients with and without T2DM, post AVR improvements in energetics were only detected in isolated AS patients. However, despite the significant improvements in contractile function and perfusion after AVR in diabetes patients, these parameters remained lower in the group with diabetes comorbidity compared to isolated AS patients.

Conflict of Interest None

Introduction Takotsubo syndrome presents like an acute myocardial infarction but typically occurs in the aftermath of psychological stress, affecting predominantly women. Here we present a complete grey and white matter structural tractography and functional connectivity assessment in takotsubo syndrome patients and matched controls.

Methods Twenty-five acute (<5 days from onset) takotsubo syndrome patients and 25 age, gender and comorbidity matched controls were recruited in an observational cross-sectional study. All patients and controls were scanned on the same magnetic resonance imaging (MRI) scanner at the same imaging centre and data were analysed with the same software versions. Surface-based morphometry was carried out on brain MRI scans to extract the cortical morphology based on volume, thickness, and surface area of all brain regions using FreeSurfer. White matter hyperintensities were determined by using the lesion segmentation tool. Cortical morphology was compared between the two groups using a general linear model in SPSS corrected for age, gender, photoperiod and total brain volume. Resting state functional MRI was analysed using the functional connectivity (CONN) toolbox by comparing the two groups. Diffusion tensor tractography images were pre-processed using the Functional Magnetic Resonance Imaging of the Brain (FMRIB’s) Diffusion Toolbox and analysed using CONN toolbox. Significance was set at p<0.05.

Results Total white matter and subcortical grey matter volume were smaller in takotsubo (p<0.001 both), driven by a reduction in brain surface area (p<0.001). All individual grey matter regions were smaller in takotsubo [hippocampus (p<0.001), para-hippocampus (p<0.001), amygdala (p=0.002), brainstem (p<0.001) and others] except for the thalamus and insula which were larger (p<0.001 both) compared to controls, in either hemisphere or combined. There was no difference in white matter hyperintensities between takotsubo syndrome patients and controls (p=0.3). Significant, numerous hyper- and hypo-functional connectivities were seen compared to matched controls (i.e. thalamus to left insula, temporal lobes, amygdala, cingulate gyrus, all p<0.05). All structural tractography connections were increased in takotsubo syndrome compared to controls (p<0.05).

Conclusion We show smaller grey and white matter volumes driven by reduced cortical surface area and increased cortical thickness, no difference in white matter hyperintensities, enhanced structural tractography connections with distinct changes in functional connectivity linked to emotion, mood, language, visual and auditory perception as well as autonomic control. Interventions aimed at attenuating these findings could be important in the rehabilitation of takotsubo patients.

Conflict of Interest None

BRAIN PHENOTYPE OF TAKOTSUBO SYNDROME

<table>
<thead>
<tr>
<th>Pericarditis</th>
<th>Number of athletes</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
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<tr>
<td>Definitive myocarditis</td>
<td>2</td>
</tr>
<tr>
<td>Healed myocarditis</td>
<td>3</td>
</tr>
<tr>
<td>Possible/probable myocarditis</td>
<td>2</td>
</tr>
</tbody>
</table>

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IMPROVING THE DIAGNOSTIC ACCURACY OF APICAL HYPERTROPHIC CARDIOMYOPATHY

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Introduction The diagnosis of apical hypertrophic cardiomyopathy (ApHCM) is contingent on demonstrating apical maximum wall thickness (MWT) of ≥15 mm; the same threshold as other HCM subtypes. However, the myocardium naturally tapers towards the apex in healthy individuals, so ≥15 mm MWT is proportionately higher in the apex than in naturally

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