Background Sarcoïdosis is a chronic systemic disease associated with cardiovascular manifestations. Although various inflammatory conditions have become recognized as non-traditional risk factors for cardiovascular disease (CVD), the risk profiles in sarcoïdosis remain uncharacterized due to its rarity. Using a big data approach we evaluated the burden of CVD on patients with sarcoïdosis.

Methods The Algorithm for Comorbidity Weighted Index (ACALM) study consists of 1816230 patients admitted to hospitals in England between 2000–2014. All patients admitted with sarcoïdosis were compared to age and gender matched control groups and multivariate logistic regression analyses were used to evaluate the risk of CVD.

Results 902 sarcoïd patients were compared to an age and gender matched control group of 9020 patients (mean age 50±15, 50.4% male). Both groups were predominantly Caucasian (sarcoid 50.3% vs. control 78%) but as expected, higher proportions of sarcoïd patients were Afro-Caribbean (18.2% vs. 3.0%) and South Asian (20.2% vs. 7.3%). Sarcoïd patients were significantly more likely to have heart failure (Odds ratio, OR 2.2), chronic kidney disease (OR 2.9), hypertension (OR 1.7), hyperlipidaemia (OR 1.3), and type 2 diabetes (OR 2.0). They were less likely to have acute coronary syndrome (OR 0.4).

Conclusion Sarcoïdosis is associated with a marked increase in heart failure and kidney disease, as well as a range of traditional CVD risk factors which need to be managed. These results are illustrated in Table 1.

Conflict of Interest none

Valve Disease/Pericardial Disease/ Cardiomyopathy

122 ENDOTHELIAL LOSS AS A CAUSE OF IMPAIRED MYOCARDIAL PERFUSION RESERVE IN SEVERE AORTIC STENOSIS

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Introduction Impaired myocardial perfusion reserve occurs in pressure overload hypertrophy such as in severe aortic stenosis (AS) despite unobstructed epicardial coronaries. However the pathological mechanisms underlying this are poorly understood. We sought to assess myocardial perfusion reserve in severe AS by stress perfusion cardiovascular magnetic resonance (CMR), and examine the findings in relation to the histological evidence of vascular changes in the myocardium.

Methods Fourteen patients with severe AS and unobstructed epicardial coronaries underwent adenosine stress perfusion CMR before and 6 months after surgical aortic valve replacement (AVR). Myocardial biopsies were obtained during AVR and stained using CD31+ for endothelium, smooth muscle actin (SMA) for smooth muscle, and picrosirius red for fibrosis. Nine age- and sex- matched post-mortem myocardial samples served as histological controls.

Results When compared to controls, the myocardium of patients with severe AS had reduced vessel density, total quantity of SMA+ve and CD31+ve, in addition to the expected increase in fibrosis. (figure 1) There was absence of CD31+ve endothelium in SMA+ve arterioles, indicating endothelial loss. Importantly, patients with an aortic valve area (AVA) ≤0.8cm² had greater endothelial loss compared to those with an AVA >0.8 and ≤1.0cm² (1.34±0.44% vs 2.84±1.03%, p=0.006), and endothelial loss also correlated with myocardial perfusion reserve index (MPRI), r=0.66, p=0.019. MPRI improved significantly post AVR (from 0.95±0.17 to 1.50±0.43, p=0.018).