ACHD/Valve disease/Pericardial disease/Cardiomyopathy

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Background The sole identification of left ventricular hypertrophy (LVH) in a young individual that died suddenly may often lead to an erroneous diagnosis of hypertrophic cardiomyopathy (HCM). Emerging data suggests that idiopathic LVH (ILVH) and HCM may be separate entities.

Aim We aimed to report on the prevalence and nature of mitral valve (MV) abnormalities, in a cohort of sudden cardiac death (SCD) victims with a post-mortem examination consistent with HCM and ILVH.

Methods We reviewed 6860 consecutive cases of SCD referred to our specialist cardiac pathology centre between 1994 and 2020. SCD was defined as death from a cardiovascular cause within 12 hours of apparent well-being. HCM was defined by the presence of LVH, in the absence of abnormal loading conditions and characterised by myocyte disarray at histology. ILVH was defined as unexplained LVH (heart weight >500 g in males and >400 g in females) and left ventricular (LV) wall thickness >15 mm, in the absence of myocardial disarray at histology.

Results Of the total cases of SCD, 264 (4%) were due to HCM (mean age 41±18 years, 78% males, LV maximal wall thickness 19±6 mm) (figure 1). Ante-mortem symptoms were reported in 44 (17%) cases and for the majority (n=217, 82%) HCM was established at post-mortem. Death was attributed to ILVH in 253 (3%) cases (mean age 43±16 years, 80% males, LV maximal wall thickness 18±4 mm). MV abnormalities were found in 58 (22%) decedents with HCM (mean age 38±17 years; 72% males) and in 13 (5%) decedents with ILVH (mean age 55±15 years; 77% male), p<0.001. Amongst the 58 (22%) cases with HCM and MV abnormalities, 15 (6%) cases had multiple MV abnormalities.

Conclusion MV abnormalities are over four-fold more common in individuals with HCM than those with ILVH and may be considered as additional macroscopic features to differentiate between these two entities. Furthermore, the inherent descriptive terminologies used when assessing the MV, so secondary causes of LVH. The MV was examined for patency, circumference, thickening, nodularity, ballooning, bulging between cords, perforation, and the presence of impact lesions in the LV outflow tract (LVOT) and aortic outlet.

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Conclusion MV abnormalities are over four-fold more common in individuals with HCM than those with ILVH and may be considered as additional macroscopic features to differentiate between these two entities. Furthermore, the inherent descriptive terminologies used when assessing the MV,
support a greater emphasis on the standardisation and quantification of MV abnormalities as part of the autopsy in victims of SCD.

Conflict of Interest
None

PREVALENCE AND DIAGNOSTIC SIGNIFICANCE OF NOVEL 12-LEAD ECG PATTERNS FOLLOWING COVID-19 INFECTION IN ELITE SOCCER PLAYERS

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Background Identification of athletes with cardiac inflammation following COVID-19 can prevent exercise fatalities. The efficacy of pre and post COVID-19 infection electrocardiograms (ECGs) for detecting athletes with myopericarditis has never been reported.

Purpose To assess the prevalence and diagnostic significance of novel 12-lead ECG patterns following COVID-19 infection in elite soccer players.

Methods We conducted a multicentre study over a 2-year period involving 5 centres and 34 clubs and compared pre COVID and post COVID ECG changes in 455 consecutive athletes who were infected. ECGs were reported in accordance with the International recommendations for ECG interpretation in athletes. The following patterns were also considered abnormal if they were not detected on the pre COVID-19 infection ECG: (a) biphasic T waves; (b) reduction in T wave amplitude by 50% in contiguous leads; (c) ST segment depression; (d) J-point and ST segment elevation > 0.2 mV in the precordial leads and >0.1 mV in the limb leads; (e) tall T waves >1.0 mV; (f) low QRS amplitude in >3 limb leads and (g) complete right bundle branch block. Athletes exhibiting novel ECG changes underwent cardiovascular magnetic resonance (CMR) scans. One club mandated CMR scans for all 28 (6%) athletes, despite the absence of cardiac symptoms or ECG changes.

Results Athletes were aged 22 ± 5 years, 89% were male and 57% were white. 65 (14%) athletes reported cardiac symptoms. The mean duration of illness was 3 ± 4 days. The post COVID ECG was performed 14 ± 16 days following a positive PCR test. 440 (97%) athletes had an unchanged post COVID-19 ECG. Of these, 3 (0.6%) had cardiac symptoms and CMRs resulted in a diagnosis of pericarditis. 15 (3%) athletes demonstrated novel ECG changes following COVID-19 infection. Among athletes who demonstrated novel ECG changes, 10 (67%) athletes revealed novel ECG changes, had a higher prevalence of cardiac symptoms (67% v 12% p<0.0001) and