Abstract: P5278

Myocardial abnormalities in people living with Human Immunodeficiency Virus (PLWH) detected using cardiovascular magnetic resonance (CMR)

Authors:
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Topic(s):
T1 and T2 Mapping, T2*

Citation:

Background
Antiretroviral therapy (ART) has dramatically improved the prognosis in PLWH with survival nearing that of HIV negative people. PLWH may develop significant comorbidities as they age including cardiovascular disease (CVD) such as myocardial infarction, sudden cardiac death, heart failure, as well as subclinical evidence of myocardial inflammation. Overall, ART treated patients are at an increased CVD risk with some studies quoting a 2.2 fold relative risk.

Aim
To assess the incidence of functional, structural and tissue characterisation changes in PLWH using CMR with multiparametric mapping

Methods
39 PLWH (34 men, mean age 55.8±10.9, mean duration of HIV 17.8±9.29 years) and 29 healthy volunteers (20 men, mean age 45.1±8.3) underwent CMR with late gadolinium enhancement (LGE) imaging, T1 and T2 mapping.

Results
Of PLWH, only 7 scans (18%) were normal. LV ejection fraction was significantly lower and LV mass significantly higher compared to controls. Native T1, a marker of diffuse fibrosis or increased myocardial water content was no different between the groups. T2, a more specific marker of myocardial oedema, was elevated in PLWH. Sixteen PLWH (41%) had evidence of LGE including 8 with an ischaemic pattern (7 sub-endocardial and one transmural) and 8 with a non-ischaemic pattern (5 with mid-wall enhancement and 3 with RV insertion point LGE. No controls had evidence of LGE.

Conclusion
This study identifies a number of cardiac changes associated with HIV and prolonged treatment with ART. The elevated LV mass may be associated with hypertension, commonly found in PLWH. The elevated myocardial T2 compared to controls may be due to chronic inflammation associated to prolonged HIV exposure. There was no evidence of diffuse fibrosis but focal areas of non-ischaemic scar were a common finding which may relate to previous myocarditis or HIV-related cardiomyopathy. A fifth of PLWH also had evidence of previous myocardial infarction.

We propose to image asymptomatic PLWH to further classify, diagnose and treat a vulnerable group of patients who are now described as having a normal life expectancy.

<table>
<thead>
<tr>
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<th>PLWH (n=39)</th>
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<tbody>
<tr>
<td>LVEF (%)</td>
<td>59±15</td>
<td>67±5</td>
<td>&lt;0.01</td>
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<td>Native T1 (ms)</td>
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<td>LGE</td>
<td>16 (41%)</td>
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LVEF(%)=Left Ventricular Ejection Fraction iLVM=Indexed Left Ventricular Mass (g/m2) LGE=Late Gadolinium Enhancement