The role of immune checkpoint inhibitors (ICI) in the treatment of cancer is increasing. Since 2020, ICI are approved as first- or second-line therapy in over 50 malignancies and 43% of patients will have cancers eligible for an ICI. (1) This has led to an expansion in the number of patients receiving ICIs and the associated complications. Cardiovascular immune-related adverse events (CV irAE) include myocarditis in 1.8% of patients. (2) Early recognition, aggressive immunosuppression, potential advanced heart failure therapies and management by a multidisciplinary team are required as the mortality is up to 50%. (3) ICIs are associated with a 3-fold increased risk of atherosclerotic cardiovascular events and 25-fold higher rate of aortic plaque progression. (4) Appropriate primary and secondary prevention for cardiovascular disease (CVD) are required. The cardio-oncology service at Barts Heart Centre, Barts Health NHS Trust; 2University College London Hospitals NHS Foundation Trust, 3Hatter Cardiovascular Institute, University College London, 4Mount Vernon Cancer Centre, East and North Hertfordshire NHS Trust has been in place since 2019-2020. The cardio-oncology service at Barts Heart Centre, University College Hospital and St Bartholomew’s Hospital Cancer Directorates for local approval. The proposed referral pathway for CV irAE was approved by the Cancer Directorate at St Bartholomew’s Hospital: Five district general hospitals (DGH) with cardiology services were included as pilot sites for implementation.

**RESULTS:**

- **Audit:** Two patients (10%) had a QRISK®3 calculated by their GP within 3 months prior to ICI. One patient (6%) had established CVD. The QRISK®3 was calculated for the remaining 19 patients. Nine patients (45%) had QRISK®3 ≥10%; two were already treated with a statin, whilst the remaining seven patients were untreated. Baseline CV risk assessment is currently not performed for the majority of patients prior to commencing ICI.
- **METHODS:** A multi-professional working group was created consisting of cardiologists, oncologists and a cardio-oncology specialist nurse. The project schedule is illustrated (Figure 1).
- An audit of 20 consecutive patients commencing ICI for malignant melanoma at St Bartholomew’s Hospital in 2019-2020 was performed using data from GP and hospital electronic patient records. A QRISK®3 was calculated for all patients without established CVD. Current patient pathways were reviewed. A GP guidance letter was developed, reviewed by a GP representative and submitted to Mount Vernon Cancer Centre, University College Hospital and St Bartholomew’s Hospital Cancer Directorates for local approval. The proposed referral pathway for CV irAE was approved by the Cancer Directorate at St Bartholomew’s Hospital: Five district general hospitals (DGH) with cardiology services were included as pilot sites for implementation.

**REFERENCES:**


**Figure 2. Proposed CV irAE management pathway**

**CONCLUSION:** Through collaboration with a multi-professional team and engagement with different institutions we have developed cross-site pathways to improve the baseline CV risk assessment and management of CV immune-related adverse events in patients receiving immunotherapy treatment. The effect of this project will be evaluated in a re-audit.

We aim to expand the network of hospitals involved in these pathways.

**RESULTS:**

1. **Baseline CV Risk Assessment:**
   - **Audit:** Two patients (10%) had a QRISK®3 calculated by their GP within 3 months prior to ICI. One patient (6%) had established CVD. The QRISK®3 was calculated for the remaining 19 patients. Nine patients (45%) had QRISK®3 ≥10%; two were already treated with a statin, whilst the remaining seven patients were untreated. Baseline CV risk assessment is currently not performed for the majority of patients prior to commencing ICI.
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   - **RESULTS:**
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**REFERENCES:**

- **Table 1:**
<table>
<thead>
<tr>
<th>Baseline CV Risk Assessment</th>
<th>Grade 2 (Possible symptoms, Abnormal test)</th>
<th>Grade 3 (Severe symptoms, Requiring IV treatment or procedure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site: Risk Score</td>
<td>Admitted to local hospital with cardiac beds. Daily troponin &amp; ECG.</td>
<td>If suspected diabetes: Abnormal test, transfer to Endocrinologist.</td>
</tr>
<tr>
<td>CV irAE</td>
<td>Admitted to local hospital with cardiac beds. L斌ie with AG/CM. Am to transfer to BP. Daily troponin &amp; ECG.</td>
<td>Transfer to Cardiologist.</td>
</tr>
<tr>
<td>CV irAE</td>
<td>If suspected diabetes: Abnormal test, transfer to Endocrinologist.</td>
<td></td>
</tr>
<tr>
<td>Stratification</td>
<td>Within limits, Base with AG/CM. Out of limits, Base with AG/CM.</td>
<td>If suspected diabetes: Abnormal test, transfer to Endocrinologist.</td>
</tr>
</tbody>
</table>

**Figure 1. Chart of the project schedule**

For all grade 1 - locally contact AOD/encore team. Advice: local cardiologist/ONC oncology team can seek advice from Dr Ghosh/Dr Marsyas at UCL/UH Bartholomew’s Hospital [SBH] Cardio-oncology service. fnagisha@barts.nhs.uk, onslife@barts.nhs.uk. If patient on a clinical trial, urgently contact their team

Stop the Immunotherapy Treatment cardiac presentation with usual treatment. Early cardio review.

If symptoms and assessment consistent with cardiac IRAE. Urgently refer to the Acute Oncology Service (AOD) oncology team. If patient on a clinical trial, urgently contact their team

Stop the Immunotherapy Treatment cardiac presentation with usual treatment. Early cardio review.