classified as a variant of uncertain significance, although in-silico prediction tools consider it deleterious. A second discussion was had with the patient explaining the additive risk of her genetic profile combined with the presence of scar in her septum. She agreed to ICD implantation. 8 months later, the patient received a shock for ventricular fibrillation during sleep.

**Implications** This case highlights the importance of an integrative risk assessment for each patient to include genetics. The ESC HCM-SCD risk prediction score is not impervious and, importantly, it does not include scar burden or genetics. It is established that patients with more than one mutation in candidate genes have an increased risk and although studies to this effect are few in number. An individualized approach needs to be taken in each HCM case.

**Background**

Almost 60% of the 2,000 children diagnosed with cancer in the UK and Ireland every year are treated with anthracycline chemotherapy. Anthracyclines are WHO essential medicines, and 5-year childhood cancer survival rates are approaching 85%, but also carry a risk of cardiotoxicity, particularly for childhood cancer survivors (CCS) of whom 30% have left ventricular dysfunction at 10 years and 10% have heart failure at 40 years post treatment. Current guidelines advocate periodic screening every 1–5 years however this approach is both resource intensive and inadequate, diagnosing cardiotoxicity at a late and often irreversible stage. Consequently, ‘Defining Robust Predictors of Cardiotoxicity’ was deemed a top ten priority for the cardio-oncology field at the Global Cardio-Oncology Summit.

**Purpose** Our research aims to investigate novel imaging and blood biomarkers (established, novel and biomarker discovery) in the Northern Ireland population of childhood cancer survivors.

**Method**

Consenting adult patients will have cardiovascular risk factor screening, a quality-of-life questionnaire, six-minute walk test (6MWT) and a 24-hour Holter monitor. Patients will undergo 3D echocardiography, Global Longitudinal Strain (GLS) and Right Ventricular (RV) Strain imaging. Magnetic Resonance Imaging (MRI) will be conducted with feature tracking, myocardial tagging and aortic distensibility. Blood will be analysed for established (NTproBNP, CRP, and Troponin) and novel (IL6, sST2, MPO) biomarkers. Biomarker discovery through proteomic and microRNA analysis will be explored in subgroups of patients with normal ventricular function, impaired strain and ejection fraction. The top differentially expressed biomarkers will subsequently be validated within the remaining cohort.

**Results**

50 patients have been recruited to date (33 female, mean age 26). Half were treated before the age of 5. Mean dose was 265mg/m2 (120–480). Time since treatment was mean 18 years (median 16.5, range 6–33). 7 patients had a blood pressure >140/90mmHg, 18 had an abnormal lipid profile, and 1 had an abnormal HbA1c. Mean BMI was 27.1kg/m2 (18–49) with 23 participants classified as overweight/obese. 21 (42%) patients had a 6MWT distance below the lower limit of normal for their age/sex/height/weight. Left ventricular dysfunction was detected in 22/50 (44%): 3D ejection fraction was <55% in 7/46, GLS was abnormal in 22/43 and RV strain was abnormal in 15/31 patients. Troponin was normal in all patients. NTproBNP was elevated (>125ng/L) in 10 patients (20%). Elevated NTproBNP was associated with higher anthracycline dose (P=0.004, r=0.42). NTproBNP, CRP and Troponin were not associated with abnormal echocardiographic parameters. MRI and novel biomarker analysis will be conducted on enrolment completion.

**Conclusion**

Childhood cancer survivors are at increased cardiotoxicity risk. Current results indicate that CCS have increased cardiovascular risk and impaired 6MWT. Established biomarkers fail to correlate with imaging data and as such support ongoing biomarker research.