ECHOCARDIOGRAM MONITORING AND INCIDENCE OF CARDIOTOXICITY IN ANTRACYCLINE BASED CHEMOTHERAPY IN LYMPHOMA PATIENTS: A SINGLE CENTRE EXPERIENCE

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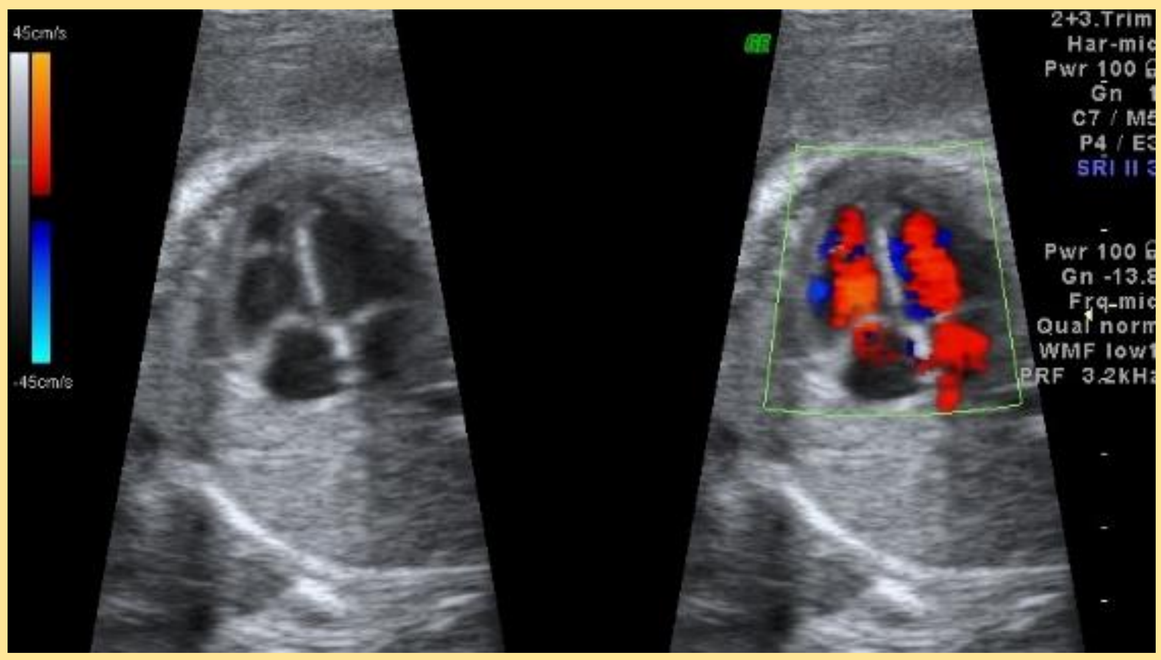
Background: Anthracyclines are an important component of lymphoma treatment but can induce cardiac dysfunction, ranging from an asymptomatic decline in left ventricular ejection fraction to the development of severe heart failure. Although several risk factors have been identified, predication, prevention and management of cardiac dysfunction following anthracycline treatment remains a challenge. Currently there is no consensus on managing patients receiving anthracycline based treatments.

Aim: To identify the incidence of cardiac toxicity in lymphoma patients following treatment with anthracyclines, identify possible risk factors and attempt to identify monitoring strategies.

Methods: A prospectively maintained database of adult lymphoma patients treated at University Hospital of Wales was reviewed to identify patients who received CHOP+/- R (Cyclophosphamide, Doxorubicin, Vincristine, Prednisolone and Rituximab) ABVD+/-R (Doxorubicin, Bleomycin, Vinblastine, Dacarbazine and Rituximab) between January 2016 and March 2019. Patients who received a minimum of 4 cycles were included. Information about diagnosis, risk factors, pre and post treatment echocardiogram and management of patients diagnosed with cardiac dysfunction was analyzed.



Results: A total of 93 patients were identified. Mean age at diagnosis was 58 years old (range 27-78). The most common subtype was DLBCL (48.4%) with stage IV disease (49%). 71% of patients received R-CHOP. 33% had hypertension, 11% had diabetes mellitus and pre-existing cardiac disease was found in 10%. Pre-treatment echocardiogram results were available for 76.3% patients, all of which were normal (ejection fraction >50%).

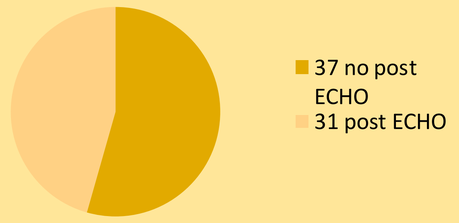
Post treatment echocardiogram results were available for 47.3%, range 3-40 months post treatment, abnormal results were detected in 6 (6.4%) patients: 2 asymptomatic reduction in left ventricular function, 3 severe left ventricular failure and 1 severe right ventricular failure. All patients with abnormal results were referred to cardiology. Medications commenced by cardiology included angiotensin-converting enzyme inhibitors, angiotensin-receptor blockers, beta-blockers and diuretics. Of the 93 patients, 11 (11.8%) died, main cause of death was progressive disease (45%), 1 patient had severe right side heart failure which prevented further treatment delivery.

Summary: In this retrospective analysis we identified a significant number of patients who developed cardiotoxicity following anthracycline treatment. No common risk factor was identified, all patients were above the age of 60. However, the number of patients is too small to draw definitive conclusions.

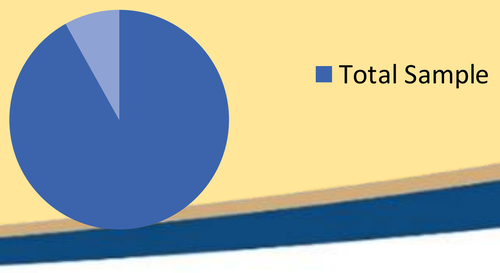
There is an increasing need for a national guideline on the selection of patients appropriate for Anthracycline based treatment, and the monitoring and management of Anthracycline induced cardiotoxicity. **Until such guidelines are available in our center, we propose to carry out a pre- and post –treatment echocardiogram on all people having anthracycline, a thorough review of cardiac risk factors, with prompt referral to cardiology when dysfunction is recognized and to continue to collect information on patients who develop anthracycline related cardiotoxicity.** The CARDIAC Care study, which is currently investigating the use of cardiac markers in identifying high risk patients and the utilization of angiotensin receptor blockers and B-blockers to prevent heart muscle injury related to chemotherapy, will be vital to future guidelines.

	Age	Diagnosis	Treatment	Risk factors	Pre-treatment Echocardiogram	Post-treatment echocardiogram	Outcome
Patient 1	71	DLBCL	R-CHOPX6	Nil	Not available	LVEF 45%	Referred to Cardiology
Patient 2	62	DLBCL	R-CHOPX6	Nil	EF 55%	LVEF 45%	Referred to Cardiology
Patient 3	73	DLBCL	R-CHOPX6	Hypertension and mild tricuspid regurgitation	Mild tricuspid regurgitation and normal bi-ventricular ejection fraction	Severe right ventricular failure	Started on cardiac medications. Died of progressive disease
Patient 4	70	DLBCL	R-CHOPX6	Nil	Normal	Left ventricular Ejection fraction 10%	Started on cardiac medications repeat LVEF 40-45%.
Patient 5	77	Hodgkin Lymphoma	CHOPX6	Nil	Normal	Ejection fraction 27%	Started on cardiac treatment awaiting repeat echocardiogram
Patient 6	64	DLBCL	R-CHOPX6	Hypertension	Normal	Ejection fraction 10%	Started on cardiac medications. LVEF initially increased to 30-40% but dropped to 19% on most recent echocardiogram, remains under cardiology care.

Of the 68 pts in the sample, record of post treatment ECHOs



Number of Cardiology referrals



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