

**Title:** The role of 2D-Transthoracic Echocardiography in patients with Multiple Myeloma.

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**Background:** Multiple myeloma (MM) is a plasma cell neoplasm. Presentations vary from asymptomatic to severely symptomatic. Cardiac involvement in MM has been described but not completely studied. Echocardiography (ECHO) is an important tool in assessing cardiac pathology and its utility in managing MM is not fully understood. We intend to characterize cardiac pathology in various stages of MM and look for if there is any association between changes in ECHO findings with MM activity.

**Methods:** Retrospective study utilizing a database of 150 MM patients who were diagnosed and treated in our institution was used. Patients 18 years or older with a confirmed diagnosis of MM between 01/01/2000 to 12/01/2015 who had ECHO done for any reason within 6 months prior or any time after MM diagnosis will be included. Patients with other malignancies will be excluded.

**Study design:** Echo variables like Ejection Fraction, Systolic and Diastolic dysfunction, Pulmonary artery pressure, Pericardial effusion and MM variables like Hb, Protein, Albumin, b2 microalbumin, Kappa/Lambda ration will be collected. Comorbidities like Hypertension, CAD, CHF, COPD, Pulmonary embolism if any will be documented.

**Analysis:** Data collected will be analyzed by independent statistician using standard statistical tools. A dependent t-test will be performed to determine the difference between the subject's pre and post ECHO readings.

**Observations so far:** Among 30 patients analyzed thus far after excluding other possible etiologies 5 were found to have pulmonary hypertension, 5 had hyperdynamic EF, 3 had pericardial effusion, 2 had diastolic dysfunction, and 1 patient with systolic dysfunction. Complete data will be presented as soon as analysis is completed on remaining patients.

**Discussion:** Understanding cardiac pathology in MM is important as it may provide valuable information regarding MM progression. The cardiac dysfunction in these patients may also result from cardiotoxicities from prior drug therapies or valvular disease from amyloid deposition. Additionally CHF secondary to MM do not respond to traditional heart failure therapies but instead improve with MM regression from treatment, thus making us wonder what the exact underlying mechanism may be.