**MULTIMODALITY IMAGING IN CARDIOMYOPATHY**

**J. Shirani**

St. Luke's University Health Network, Bethlehem, PA, USA

Primary diseases of the heart muscle (cardiomyopathies) are often classified based on their gross morphological phenotypes and certain functional characteristics. The diagnosis is, thus, highly dependent on the findings on cardiac imaging that not only identifies the categories of the disease (hypertrophic, dilated, and restrictive) but also provides the basis for institution of specific therapeutic interventions. Even the unclassified cardiomyopathies (arrhythmogenic right ventricular cardiomyopathy and left ventricular noncompaction) are defined by their morphologic characteristics on non-invasive cardiac imaging. Echocardiography has been the most useful clinical tool for diagnosis, management and follows up of patients with cardiomyopathies. However, assessment of physiologic, and exclusion of secondary causes of cardiomyopathies may require evaluation with other advanced imaging modalities such as cardiac magnetic resonance (CMR), cardiac nuclear imaging and cardiac computed tomography. Physiologic counterparts of primary cardiomyopathies include athlete’s heart and some secondary causes of cardiomyopathy may not be distinguishable on the basis of cardiac phenotype alone. In addition, with the widespread use of genetic testing a large number of individuals are being identified in whom the primary disease has not expressed itself phenotypically. In the latter group of patients, application of sophisticated non-invasive imaging techniques (including molecular probes for assessment of subclinical metabolic abnormalities) can provide important information for understanding the clinical course of the disease. A systematic approach to cardiomyopathies, using multimodality imaging when required, ensures accurate diagnosis, institution of specific treatment and exclusion of potential alternative diagnoses that may mimic primary cardiomyopathies.