Thyrotoxicosis is usually associated with cardiovascular morphological and functional changes (remodeling) which may lead to cardiac decompensation secondary to the apoptotic process. Autoimmune initiation may be a triggering factor.AimIdentifying the structural and functional cardiac changes in Graves' toxicosis before and after restoration of euthyroidism and to illustrate the role of apoptosis if any on cardiac remodeling.Study designProspective controlled study.Subjects and methodsThirty young females with Graves' toxicosis and positive thyroid antibody tests, were selected from outpatient clinics of Mansoura University Hospital. The studied cases were evaluated by clinical examination, electrocardiography and echocardiography for cardiac changes before and after restoration of the euthyroid state and compared to a control group of age and sex matched euthyroid individuals. The anti apoptotic serum marker (Bcl-2) level was estimated on inclusion and after control of the thyrotoxicosis. Correlation of the anti apoptotic serum marker with thyroid function test and the cardiac remodeling changes was undertaken.ResultsSinus tachycardia, prolonged QTc interval and increased QTd were evident. Echocardiographic evidences of increased left ventricular mass, diastolic dysfunction and some systolic dysfunction were common and these positively correlated with thyroid function tests but negatively correlated with serum anti apoptotic marker (Bcl-2).Conclusion Structural cardiac and functional changes are usual findings in Graves' toxicosis that can be manifested by diastolic and systolic dysfunctional changes. Identifying remodeling and apoptosis and early management of thyrotoxicosis can halt the cardiac changes.