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Failed suicide averts sudden death: Incidentally discovered severe hypertrophic cardiomyopathy (HCM) in a patient presenting with intentional drug overdose

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HCM is the most common cause of sudden cardiac death (SCD) in young people. It is important to screen these patients for established SCD risk markers and recommend ICD placement when appropriate. Treatment of depression on top of HCM is challenging due to an increased risk of prolonged QT interval and arrhythmias in a patient already at high risk for SCD.

Case: 26 year old female with depression presented after a suicide attempt ingesting multiple Percocet and Xanax tablets. She complained of substernal chest pain and worsening shortness of breath over the last few years.She has a cousin who suddenly died in his 30s. Auscultation revealed a systolic ejection murmur that worsened with valsalva and prominent S4. Her EKG showed left axis deviation, left ventricular hypertrophy (LVH) with repolarization abnormalities and QT interval of 502ms. A 2D echocardiogram showed severe concentric LVH, interventricularseptum of 32mm, posterior wall of 29mm, ejection fraction of 75%, and an abnormal systolic left ventricular mid-cavity to outflow track gradient of 87mmHg at rest. She was diagnosed with severe HCM and started on a beta blocker. She was then transferred to inpatient psychiatry and received psychotherapy, group counselling and started on Zoloft. An Implantable cardioverter-defibrillator (ICD) was then placed for primary prevention because of the multiple SCD risk factors mentioned. Cardiac surgery considered her unsuitable for myectomy or septal ablation due to severe concentric LVH and poor anticipated response. A month later she presented with multiple ICD firings attributed to sustained ventricular tachycardia on interrogation. She is currently being evaluated for cardiac transplant because of failure to respond to medical therapy.

Discussion: Familial HCM is an autosomal dominant disease due to mutations in one of the genes encoding for sarcomere proteins. Major risks for sudden cardiac death with HCM include history of cardiac arrest or ventricular fibrillation, spontaneous sustained or non-sustained ventricular tachycardia, family history of premature sudden death, recurrent syncope, severe LVH and abnormal exercise blood pressure. Within six months, she had 2 episodes of appropriate ICD therapy secondary to sustained ventricular tachycardia. Although studies show that the annual rate of appropriate ICD therapy is just 4% and the number of risk factors does not predict subsequent device discharge, the severity of such risk factors might play a significant role. Medications used for depression that are known to cause prolonged QT interval include tricyclic antidepressants (class effect) and citalopram. Other selective serotonin reuptake inhibitors such as sertraline do not induce this phenomenon. Bupropion may be ideal because it can shorten the QT interval.

Biography

Marvin Louis Roy Lu has completed his M.D. at the age of 25 years from University of Santo Tomas in the Philippines and is currently a PGY 1 resident at Albert Einstein Medical Center, Philadelphia.