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## Sudden cardiac death

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Sudden Cardiac Death (SCD) includes an acute precipitating trigger that lies in the brain and a chronic electrical instability of the myocardium. Majority of the SCDs in absolute terms, occur in subjects with no known pre-existing heart disease. It is possible that the incidence of SCD is about 20% per year in patients with heart failure and those with markers of arrhythmias, compared with about 1-2% in general population, subjects with no known pre-existing heart disease. Acute anxiety, hypertension, hyperlipidemia, family history, personality type; type A behavior, diabetes mellitus, prediabetes, metabolic syndrome and obesity. Behavioral risk factors: Type-A behavior, physical inactivity, smoking, male gender, women after menopausal age, unhealthy diet and modern life style habits, like eating regularly fast foods or foods full with saturated fats, late night sleep, family history, excess alcohol and salt intake can also predispose SCD. Some cations and vitamins deficiency (especially magnesium, potassium, flavonoids and trace elements and thiamine deficiency has been associated with SCD. One or a combination of these risk factors leads to pathological conditions of the Cardio Vascular Diseases (CVD) that predisposes SCD. The most common physio-pathological event is the rupture of the vulnerable atherosclerotic plaque with athero-thrombosis in the majority of the patients with Acute Coronary Syndromes (ACSs) and SCD. In an animal experiment, it has been reported that neutrophil-depleted animals had worsened cardiac function, increased fibrosis and progressively developed heart failure, indicating that high neutrophil counts are considered as predictor of adverse clinical outcomes and mortality in patients with ACS. These cells may cause a detrimental effect in the acute inflammatory phase after infarction. ACS in patients with type-2 diabetes doubles the risk of SCD and the risk is greater with higher blood glucose. ACS patients with STEMI and NSTEMI have increased risk of SCD and there are several gender differences in presentation to emergency care. Prevention of SCD may be possible by prevention of diet and lifestyle factors to prevent cardiovascular diseases and health promotion. Recent advances in cardiac imaging techniques as CMR (Cardiac Magnetic Resonance) imaging can be much helpful in pre-clinical detection of patients at risk of serious cardiac arrhythmias and sudden cardiac death, late gadolinium can identify areas of myocardial fibrosis in arrhythmogenic cardiomyopathy right ventricular dysplasia and some case of mitral valve prolapsed syndrome as well. In addition, speckle tracking echocardiography is recently used as important tool in the diagnosis of non STEMI in critical care departments which can add greatly to the triage of diagnosis of acute coronary syndrome. Finally, tissue Doppler imaging and deformation imaging is crucial for early detection of patients at risk for sudden cardiac death in certain patients with hypertrophic cardiomyopathy in the preclinical phase.

## Biography

Galal Eldin Nagib El-kilany is an Assistant Clinical Professor and Consultant of Cardiology at Gulf Medical University (GMU), UAE. He is a distinguished Fellow at International Society of Cardiovascular Ultrasound (ISCU), USA; President of ISCU; Fellow of European Society of Cardiology, France; Associate Editor of Journal of Molecular and Translational Research and Editor of World Heart Journal.

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