Molecular autopsy in sudden cardiac death and genetic screen in arrhythmogenic cardiac syndromes.

Abstract
Sudden cardiac death (SCD) is one of the most important mode of death in Western Countries and remains a major public health problems; is responsible for half of all deaths due to cardiovascular disease. New methods of preventing potentially fatal arrhythmias have been developed, and the accurate diagnosis of the causes of Sudden Cardiac Death is now of particular importance. In recent years researchers have identified the genetic background of many diseases involving the myocardium, and many Cardiomyopathies are considered to have a genetic origin. Specialized myocytes of the cardiac conduction system are essential to coordinate sequential contraction of cardiac atria and ventricles. Anomalies of the cardiac conduction system can result in lethal cardiac arrhythmias, including sick sinus syndrome and atrial or ventricular fibrillation. In particular, we studied the HCN4-gene, have been associated with sinus node dysfunction. Tetramers of HCN subunits constitute the ion channels that conduct the hyperpolarization-activated “funny” current (If), which plays an important modulating role in sinus atrial node-pacemaker activity. In our contribution, we examined the HCN4-gene in cases of sudden cardiac death. The adequate assessment of Sudden Cardiac Death, including not only a protocol for the Autopsy, heart examination and histological sampling, but also for molecular genetic investigation.