

COMPUTATIONAL APPROCHES FOR THE PREDICTION OF SUDDEN CARDIAC ARREST USING ECG SIGNALS

Vishnu Priya.U, Vaishali.Y, Venkata Padmaja.R, M.Hariharan*.
Department of Biomedical engineering, SRM Institute of Science and Technology,
Kattankulathur – 603 203, Tamil Nadu, India.

Sudden Cardiac Arrest (SCA) is a condition where there is a sudden, unexpected loss of heart function. SCA occurs due to the electrical disturbances in the heart. In this paper our aim is to predict the sudden cardiac arrest prior to the onset of ventricular fibrillation by using the features extracted from the ECG signal such as heart rate variability, R-R interval duration and heart rate. . The ECG data for 15normal subjects and 15SCA subjects are collected from the Physio net website. The SCA signals are segmented like 3hr prior (1hr interval), 1hr prior (10min interval) and 10min prior (1min interval) to the onset and likewise normal signals also segmented. The extracted features are then subjected to the k-Nearest Neighbor classifier. Our proposed technique is able to identify the person at the risk of developing SCA before, so that the clinicians may be aware of the patients in the intensive care units (ICU). In this work we achieved accuracy range of 61-86%. Thus the proposed system can be improved by adding further more features and also serves as a valuable tool for increasing the survival rate of many cardiac patients.