Method for Prediction of Life Threatening Cardiac Arrhythmias

Published date: Aug. 28, 2016

Technology description

Cardiac arrhythmias involve abnormal electrical conduction or automatic changes in heart rhythm. Arrhythmias may vary in severity from those that are mild and require no treatment to those that are catastrophic and life threatening. Most life-threatening arrhythmias involve ventrical fibrillations. Atrial fibrillations are usually not life-threatening. Most cardiac rhythm monitoring is performed to prevent death due to life-threatening cardiac arrhythmias (LTCA). However, current technology provides little more than detection and recognition of LTCA after it has started. This leaves very little time to protect the individual from death; the rhythm must be terminated within minutes or permanent neurologic damage or death will occur. A medical device and method for predicting cardiac arrhythmias, by gathering electrocardiographic data such as intervals between heart beats (RR-series) or other signal, mathematically decomposing or compressing the signal into several elements or components that contain the most significant information and tracking the changes in the several elements, is disclosed. The signal may be divided into time windows, and the signals decomposed into a plurality of coefficients or components such as Karhunen Loeve Transformation (KLT) coefficients that are predictive of the occurrence of a cardiac arrhythmia. The electrocardiographic data may be generated real-time, on-line, or be prerecorded data.

Institution

University of Pittsburgh

Inventors

Vladimir Shusterman
Ilan Grave
Benhur Aysin
Luis Chaparro C
Kelley Anderson

联系我们

叶先生

电 话：021-65679356
手 机：13414935137
邮 箱：yeyingsheng@zf-ym.com