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MATHEMATICAL MODELS

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ABSTRACT

Premature ventricular contractions (PVC) are premature heartbeats originating from the ventricles of the heart. These heartbeats occur before the regular heartbeat. The Fractal analysis is most mathematical models produce intractable solutions. Some studies tried to apply the fractal dimension (FD) to calculate of cardiac abnormality. Based on FD change, we can identify different abnormalities present in ECG. Present of the uses of Poincare plot indexes and the sample entropy (SE) analyses of heart rate variability (HRV) from short term ECG recordings as a screening tool for PVC. Poincare plot indexes and the SE measure are used for analyzing variability and complexity of HRV. A clear reduction of standard deviation (SD) projections in Poincare plot patterns is observed a significant difference of SD between healthy Person and PVC subjects. Finally a comparison is shown for FD, SE and Poincare plot parameters.

KEYWORDS: ECG, FD, HP, HRV, IHR, MIT-BIH, PSD, PVC, RD, RS, SD, SE