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Choosing the right time interval to predict ventricular tachycardia and assessing the risk of mistake predictions at different time intervals

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In Ventricular Tachycardia (VT), a series of ventricular contractions is generated from a point within the ventricles and the heart rate rises from 100 to 250 beats per minute and can cause death. In this study, an algorithm with the aim of predicting VT at the appropriate timeframe is presented, and in the different time intervals on Heart Rate Variability (HRV), the error prediction is investigated. This is based on features extraction from the set of HRV signal also computing the False Positive Rate (FPR). FPR is equal with the average number of wrong forecasts per hour. Considering FPR is important in terms of treatment because if the network anticipates the occurrence of the attack, the treatment is taken and the person is shocked if the person is in a healthy condition. By extracting the FPR rate and finding the lowest value for it, we can select the appropriate range for prediction. The data used includes 50 patient data and 100 healthy data. A fixed window in different places close to the occurrence of an attack and a slider window that began to move at the beginning of each signal were used and in the movement, the features extracted from both windows and given to the artificial neural network then the FPR was calculated. Intervals and comparison has been performed at different time intervals and the FPR rate is obtained at a minimum of 1.5.

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