

VENTRICULAR LATE POTENTIALS STUDY - SOME REMARKS AND CONCLUSIONS

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Abstract

The aim of our study was to discuss the problem of digital filter for ventricular late potentials detection. We have studied several HR filters and also FIR filters. We have concluded that the best filter has to be characterized by linear phase characteristic, deep and steep slope frequency characteristic and narrow amplitude characteristic. The HR filter as bidirectional Butterworth filter are prone to ringing effects and phase shifting, change the shape of filtered signal, change the spectral characteristic of filtered signal, change the time position of micropotentials in vector magnitude of filtered QRS complex. The second step of our study was to analyze if the greater number of parameters, which describe the vector magnitude (VM) of QRS complex increase the value of percent of right decision. We have used for this purpose up to 11 parameters. We conclude that the higher value of right decision percent can be obtained by using compound method of QRS complex filtration and more than 3 parameters of VM of QRS complex. In this paper we try to find method giving the objective answer, which method of digital filtration of QRS complex gives the best separation between different groups of patients, and answers how many parameters enables good patients groups separation in ventricular HR-ECG.

Keywords: electrocardiography, late ventricular potentials, signal filtering