VISUALISATION OF ELECTROCARDIOGRAMS AND HEARTRATE

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An efficient and novel method is presented to facilitate the physicians to visualize voluminous electrocardiogram (ECG) data. Varied colored pixels have been used to evince different types of ECG signals. A menu driven program has been developed to visualize the ECG data in raw and hierarchical fashion and also changes in ECG classification results due to tuning of classification parameter. The visualization of heartrate and ECG of a group of people can be done.

METHOD

In the Visualization process, each ECG beat representing one cardiac cycle namely P, QRS & T waves is assigned a grid on the display screen as shown in fig(1). The raw Holter recorded data is stored in random access file. The type of ECG beat and its beginning and end sample numbers for each ECG is stored in another file called Information file. The color of the grid is varied according to the types of ECG viz. normal, arrhythmia etc. is assigned to a number of ECG beats. When the number of ECG beats exceeds the number of available grids (pixels) for display, we go in for hierarchical representation of ECG beats, where a single grid is assigned to a number of ECG beats. In the visulization of ECG classification the two information files are compared and the grids of those the ECG whose classes have changed is colored while others are left blank. In group visualization, each individual has a data file which is displayed on a single row. If we click the mouse on a particular grid, the ECG data read and the particular wave form is displayed. In heartrate visualization, different colors are assigned for different ranges. When the mouse is clicked on a particular grid, the heartrate and the particular ECG waveform are displayed.

CONCLUSION

A simple color coding technique is developed for visualization of diagnostic ECG. The technique does not need extensive computations and is very easy to operate. The hierarchical picture representation of ECG helps the cardiologist in speed; diagnosis and also any generic anamoloy can be found out easily.

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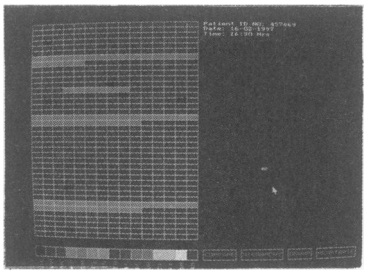

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