GE Healthcare

Marquette Waterfall Display

ECG analysis program

Providing a cascade of instant visual analysis of ECG data and changes

The clinical challenge

Reviewing extensive ECG information can be a tedious process often leading to overlooked, subtle waveform changes.

The clinical solution

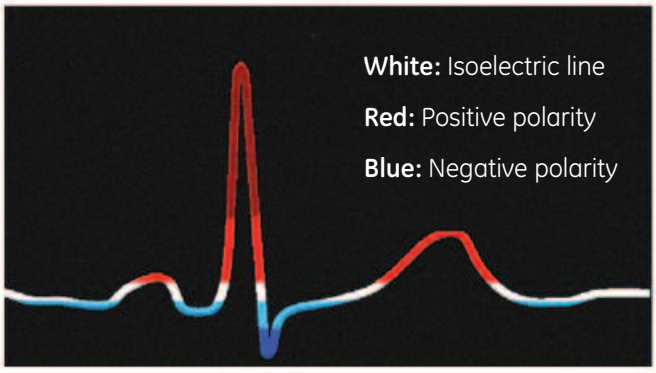
The Marquette® Waterfall Display analysis program uses unique technology that can quickly transform and display complex ECG information in an intuitive, easy-to-view manner. Users can quickly summarize complex waveforms in a new, simplified format to more easily identify QT intervals, PR intervals, ST changes and arrhythmias. In fact, it has been shown the time required for clinicians to review a 24-hour holter study is reduced from 90 minutes to just 12.5 minutes[1], making the Marquette Waterfall Display analysis program a practical choice for enhancing workflow, accuracy and efficiency.

Advantages of GE's Marquette Waterfall Display analysis program

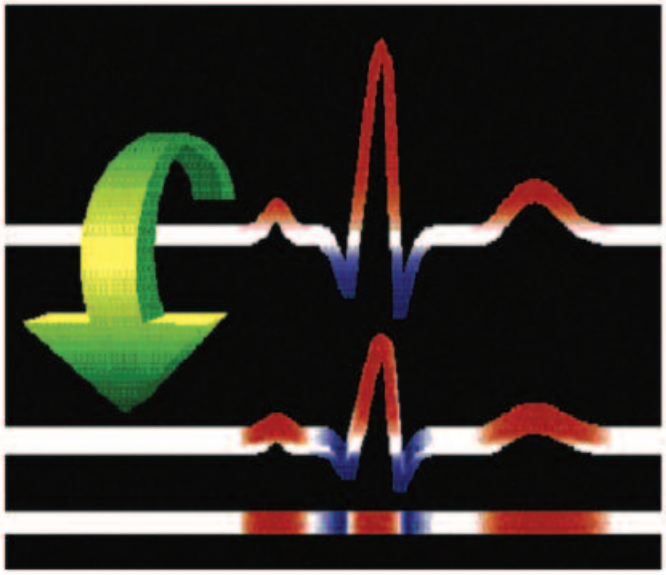
- Utilizes technology unique to GE
- Uses colorized prompts to quickly guide reviewers to areas for assessment of severity, duration and localization of possible areas of concern
- Reveals relevant patterns not readily apparent through traditional assessment methods
- Allows clinicians to detect subtle, temporal changes without having to look at ECG traces, QRS complexes or full disclosure recordings
- Provides quick, confident ST segment assessment
- Allows user to view multiple, simultaneous leads to detect patterns of ischemic changes

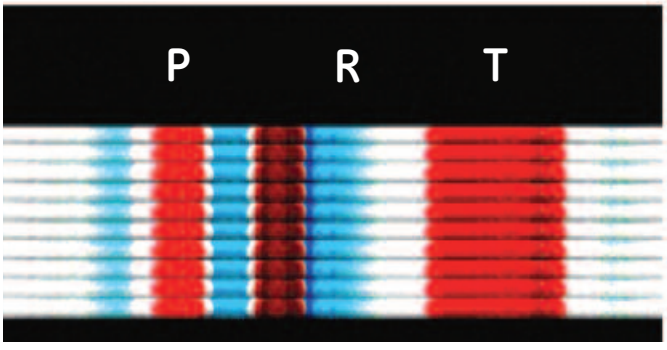
How it works

1. Each QRS complex is colorized based on its electric signal. The darker the color, the further away from the isoelectric/neutral line.

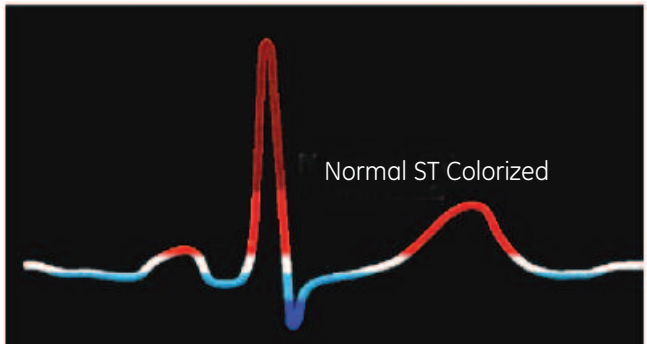


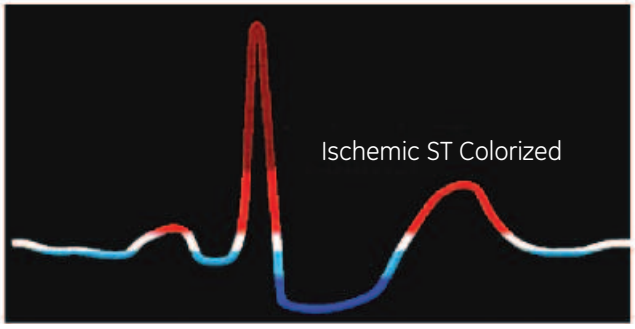
2. Each colorized QRS complex is tilted toward the viewer to form a single colorized QRS "slice." The "slices" are then stacked sequentially upon each other, resulting in a multi-color "waterfall display."

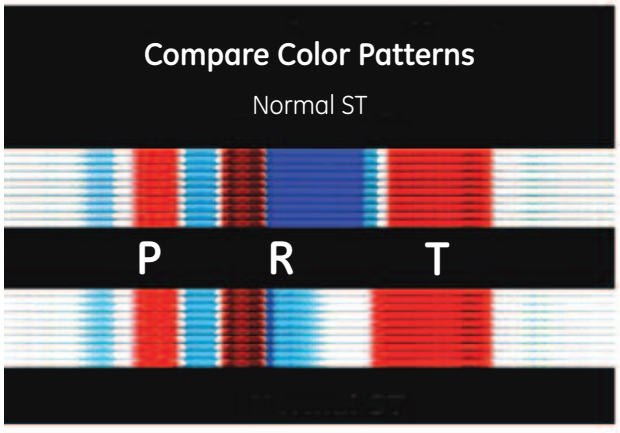




3. QRS complex changes are immediately visible to the user.



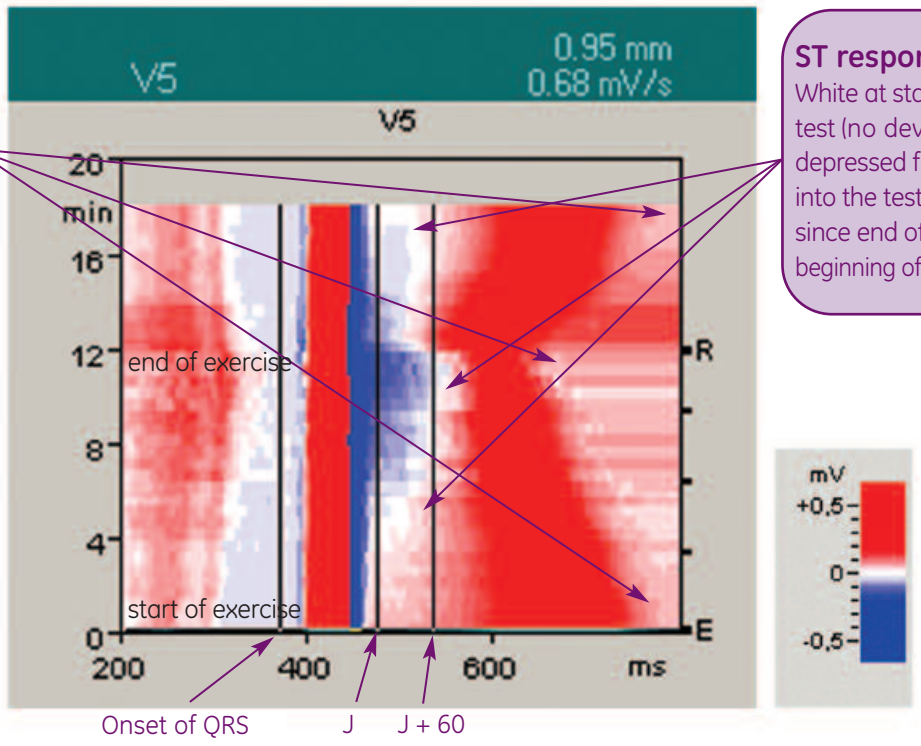




4. Complex data is displayed, and changes are immediately evident to users. And by simply clicking on the location of the change in the large display, the user is taken to a strip showing the actual waveform.

QT response to heart rate
Same at start and end of test, shortens with increase in heart rate during test

ST response
White at start and end of test (no deviation), slightly depressed from 6 to 12 minutes into the test (upward sloping since end of ST is white and beginning of ST is blue, depressed)



Test Duration in Minutes

Onset of QRS J J + 60

[1] Warner. R.A., Conrad. C., Hinrichs. L., Palma. M., and Young. B. (2002, April) The Watrall Display for Continuous Electrocardiographic Monitoring. Poster session presented at the International Society for Computerized Electrocardiology. Doorwerth, the Netherlands.

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GE Healthcare
3000 North Grandview
Waukesha, WI 53188
U.S.A.

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