

COMPUTERIZED ANALYSIS OF THE DOPPLER CURVES

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Automation of the feature extraction from Doppler blood flow curves /DEFCs/ is an ultimate need when quantity of curves is to be analysed. In our research DEFCs are recorded at the bedside in analog form both on strip recorder and cassette FM recorder. Cassette records are then fed to the computer for the off-line analysis. Since the shape of the DEFC depends on many uncontrollable factors, provisions have to be made for the choice of appropriate fragments of the curve for the analysis. Therefore the program has been written as interactive one. At the beginning of its run the program reads from cassette recorded baseline and calibration signals and 20.5 sec section of DEFC. After reading is completed, first segment of stored curve is displayed on the CRT screen. Operator can choose arbitrary section of the display for the analysis by shifting a movable marker and/or display next segment of the curve. A hard copy of the chosen section can be obtained on the X-Y recorder. To complete data for analysis operator selects four sections of the DEFC which are averaged and displayed. If average waveform is accepted, the program computes required parameters. These are as follows: durations of the systolic, reverse /if any/ and diastolic flow phases, duration of the complete evolution, peak velocities for each phase, areas of each phase, average flow velocity, acceleration time, peak velocity-acceleration time quotient and stroke index - percentage of the reverse flow in total flow. Velocities and areas are in relative units. Results are printed out and stored on punch tape for further analysis.