ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #170

1. Title:
Serial ECG Change Outcomes

2. Writing Group:
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3. Timeline:
Submit manuscript proposal to Publication Committee                10/92
Complete Data Analysis                                                             10/93
Submit First Draft                                                                        2/94
Submit to Journal                                                                         4/94

4. Rationale:
It has long been recognized that certain ECG pattern changes are related to new coronary event or interim MI. Most published reports (1-3) of ECG diagnostic criteria for MI have dealt primarily with static ECG findings, only infrequently has attention been given to the importance of ECG change. The Minnesota ECG Coding Center has developed an objective method to directly compare ECG waveform in order to document interim or acute ischemic event (4). The results of several studies indicate that this simultaneous ECG procedure provides a better level of agreement between ECG diagnosis of MI and clinically determined MI and is related to future coronary heart disease mortality. We have focused primarily on comparing Minnesota Code Q-codes for serial Q-wave pattern change, but this procedure also included rules for direct comparison of ECG's prompted by ST-depression change, T-wave inversion change, ST elevation change, new LVH and new LBBB.

The ARIC study assesses ischemic ECG markers (Q-wave, ST segment and T-wave changes) in its cohort members hospitalized for possible MI and this provides an opportunity to investigate how ECG change (documented by Minnesota Code vs. side-by-side ECG comparison) is correlated with serum enzymes and with short and long term mortality experience. Because simultaneous ECG comparison documents ECG pattern change as an increase, decrease, or no change we will examine associations with enzymes and mortality by category of pattern change.

5. Main Hypothesis:
a) There is an independent contribution to correct diagnosis of enzyme documented MI from simultaneously compared serial ECGs above and beyond that given by change in Minnesota Codes evaluated separately.
b) Significant serial ECG pattern change among cohort participants hospitalized for possible MI (regardless of whether AMI is validated) is a significant predictor of future coronary heart disease event (recurrent or incident) and for all cause mortality.
c) Interim significant Q-wave or non-Q-wave pattern change between clinic visits without clinical evidence (history or hospitalization) of MI is a significant predictor of coronary heart disease and all cause mortality.
6. Data (variables, source, inclusion/exclusion):
a) CEC ECG comparisons, hospital record abstraction form data for all investigated cohort CHD events from 1987 forward, mortality data.
b) CEC ECG comparisons, hospital record abstraction form data for all cases investigated for possible MI from 1987 forward.
c) Serial ECG data for all interim silent MIs between Visits 1 and 2; subsequent CHD events and mortality outcomes.

Bibliography