

30138 - SCIENTIFIC RESEARCH PROCESS

1- What did the study explore?

HRV variables parameters and their correlation with long-term outcomes (all-cause and cardiac mortality, and major clinical events) in a group of 326 consecutive patients in the subacute phase of a complicated myocardial infarction (MI). Both ST-elevation (STEMI) and Non-ST-elevation (NSTEMI) MI patients were included, and analyzed separately. The study patients were in sinus rhythm. HRV parameters, derived from 24-h Holter recordings, included: standard deviation of all normal-to-normal (NN) intervals (SDNN), standard deviation of all 5-min mean NN intervals (SDANN), root mean square of successive differences (RMSSD), and mean of the standard deviations of all RR intervals of all 5-min segments in the 24 h (SDNN-i). SDNN was analyzed for the entire 24 hours period; analysis of day and night hours was also done separately.

2- How did the Authors perform all the experiments?

The study is a retrospective cohort study, analyzing the clinical files of 326 consecutive patients which were part of a larger study on the effects of cardiac rehabilitation after AMI. All had suffered a complicated AMI (208 STEMI, 118 NSTEMI) and had undergone coronary angiography on initial admission to the Intensive Coronary Care Unit, within 24 hours from beginning of AMI symptoms (STEMI within 6 hours of symptoms, NSTEMI within 24 hours). Complicated AMI was defined as presence at initial admission of cardiogenic shock or pulmonary edema, episode of cardiac arrest, complex ventricular arrhythmias, or if they had incomplete revascularization. Various clinical variables have been recorded as reported in the paragraph Materials and Methods. Holter recordings were performed on the day of admission to CR, a median of 13.5 days after the acute event. The primary outcome measure was the occurrence of cardiac death; the secondary end-point was occurrence of major clinical events (MCE), defined as death (all-cause mortality, cardiac mortality) or readmission for a new AMI, new revascularization, episodes of heart failure or stroke. At the time of follow-up, the clinical status of the patients was assessed by telephonic interviews, performed either by a doctor or a trained team nurse. In case of clinical events, detailed information was obtained from the patient or his/her relatives. Outcomes were analyzed by intention to treat.

3- How did the Authors process all experimental data?

All the data were analyzed by means of statistical analysis, including Cox regression multivariate analysis to determine the influence of different factors on HRV parameters, and Kaplan-Meier estimates of the distribution of times from baseline to death, with Mantel-Cox log-rank analysis to compare the survival curves between the groups.

4- How did the Authors deal with the pre-study hypothesis?

The aims of the study were to assess the prevalence of severely decreased HRV in patients during the subacute phase of a STEMI treated by primary PCI, and to evaluate if HRV maintains a prognostic value in the current era of immediate percutaneous reperfusion, comparing results with those of NSTEMI cases. The results of the study demonstrated that severely depressed HRV is present in a relatively low percentage of cases, and that HRV has substantially lost its prognostic significance in primary-PCI-treated MI patients.

5- What are the novel findings of this study?

While in the past depressed HRV had been identified as a reliable marker of poor prognosis after an acute MI, this paper demonstrates that nowadays in MI patients treated by early revascularization HRV has lost

its prognostic significance. In addition, the paper is the first to report HRV parameters separately for patients with ST-elevation and Non-ST-elevation myocardial infarction. The evaluation of simple HRV parameters seems to be no more of prognostic significance in MI patients treated by early revascularization. Further studies are needed in these patients to identify reliable long-term prognostic indicators.