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However, no clinical studies have evaluated the characteristics of VF with respect to DER. Forty patients, 13 with idiopathic cardiomyopathy and 27 with coronary artery disease, undergoing defibrillator testing were included. A step down DER was measured in each patient. A DER of < 10J was defined as low (group A - 82 VF episodes), 10-19J intermediate (group B - 45 VF episodes) and >19J as high (group C - VF 59 episodes). 166 VF episodes were digitized for off-line analysis. The power spectral density (PSD) at a frequency range of 1.5-25Hz was derived for each of the VF episodes. Results: DER by group, was 7±1(4), 14±2.8(2), and 21±2.9(2) Joules. PSD analysis demonstrated significant differences between group A & C at 2 frequency ranges: 3.8±0.4(A) vs. 5.8±0.8(C), p=0.02, and 21±1±2.9(A) vs. 21.1±2±3.59(C), p=0.02 (ANOVA). The results of this study suggest that VF may not be as heterogeneous an arrhythmia as previously thought. VF can be characterized by frequency ranges which correlate with DER, indicating a physiologic significance of the PSD analysis.

Do Monophasic Action Potentials Reliably Reflect Intracellular Action Potentials During Ventricular Fibrillation?
Paulus Kinkeloh, Larisa Fabitz, Ruben Coronel, Tobias Ostholz, Michel J Janse, Michael R Franz. VAMC and Georgetown University, Washington DC USA, University of Münster, Münster Germany, University of Amsterdam, The Netherlands

Monophasic action potential recordings (MAPs) are increasingly being used in a variety of experimental and clinical settings and recently also during ventricular fibrillation (VF). MAPs have been shown to correlate closely with transmembrane action potential (TAPs) during regular rhythms. However, because MAPs reflect potentials from a large number of cells, the multiplicity of wavefronts during VF might distort the TAP-MAP correlation. The purpose of this study was to test the validity of the MAP during VF. In right ventricles of 5 isolated, Langendorff-perfused rabbit hearts, a microelectrode TAP was recorded from an epicardial cell opposite an endocardially placed MAP catheter tip. VF was induced by T wave shocks. 173 simultaneously recorded MAP and TAP complexes during VF were analyzed for activation time (AT), cycle length (CL) and action potential duration at 50% repolarisation (APD50). Activation of MAP and TAP signals was highly associated (AT difference 4.1 ± 15ms, mean ± SD). Extremely short AT and low amplitude signals were observed in both MAP and TAP recordings. Cycle length and action potential duration were not different between microelectrode and MAP recordings (see table). Conclusion: MAPs reliably represent cellular activation and repolarization waves even during VF, making them useful for studying VF in the in-situ setting including patients.

<table>
<thead>
<tr>
<th>TAP</th>
<th>MAP</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle Length</td>
<td>0.3 ±0.9ms</td>
<td>0.8 ±5.5ms</td>
</tr>
<tr>
<td>APD50</td>
<td>5.4 ±10ms</td>
<td>5.9 ±10ms</td>
</tr>
<tr>
<td>Difference</td>
<td>0.3 ±5.5ms</td>
<td>0.5 ±10ms</td>
</tr>
</tbody>
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Clinical Cardiology: Innovative Triage and Treatment of Acute Myocardial Infarction Wednesday Morning Convention Center Rooms 85-86 Abstracts 3328-3337

Long Term Outcome After Early Prehospital Thrombolysis: Influence On Mortality and Event Free Survival
Mark A. Brouwer, Charles Maynard, Jenny S. Marin, Mark Wirus, Frasek W.A. Verheugt, Douglas W. Weaver. Free University Hospital, Amsterdam NL, University Hospital Nijmegen, NL, University of Washington, Seattle WA

Prehospital thrombolysis in patients (pts) with acute myocardial infarction (AMI) shows better early compared to in-hospital thrombolysis. However, its long-term effects are unknown. In the Myocardial Infarct Triage and Intervention (MITI) trial, 500 pts with AMI < 6 hours were randomised to prehospital or in-hospital thrombolysis with rt-PA. Time to treatment was reduced by 33 minutes by prehospital initiation of thrombolysis, but clinical outcome was similar in both groups. Pts were followed over a period of 34 ± 6 months. Two years survival was 88% for prehospital and 91% for in-hospital treatment. Event free survival was 55% and 64%, resp. However, in pts in both arms treated within 70 minutes after symptom onset survival was 96% versus 86% in those treated > 70 minutes. By multivariate analysis advanced age, history of heart failure and/or coronary surgery prior to admission, but not time to treatment (p=0.84) were markers for long-term mortality. Thus, irrespective prehospital initiation, time to treatment is a major determinant for late mortality in thrombolysis for AMI. However, elderly patients and those with a cardiac history face a longer time to treatment influencing their long-term survival.

Triage of patients with suspected myocardial infarction by using a prehospital decision rule: Feasibility and safety
Arthur C Mass, Els W Grippeles, Jann A Hartman, Ag Prins, Apple A Decker, Magtien L Simoons. Erasmus University Rotterdam, Rotterdam The Netherlands, Municipal Health Department, Rotterdam The Netherlands

Background. From 1992 to 1994 a decision rule (DR) for prehospital triage was developed and validated. Multivariable predictors of acute pathology were: abnormal ECG, male gender, radiation of chestpain, nausea/sweating and prior cardiac disease. Methods. Symptoms were recorded by the general practitioner (GP) using a standardized questionnaire and a computerized ECG protocol was established to rule out MI. Over 1000 pts were evaluated over a 12 month period. Mean age was 58 and 54% were female. Of those, 466 (35%) were admitted for further evaluation and therapy, 506 (65%) were discharged home. The average length of stay was 16.7 ± 1.2 h in the CPEU, 3.2 ± 0.9 h in the Emergency Department. The DR was ruled out by exercise test in 173 of 234 pts, or treadmill echo in 236 of 351 pts, or coronary angiogram showing 27% of 348 pts. Of the 596 pts with negative stress tests, 8 (1.5%) have been readmitted with either possible MI or major MI. Combining questionnaire and ECG, the GP was advised whether or not to refer the patient for hospital admission (figure). Results. Out of 2845 patients, 304 (11%) were not referred. Mean age was 58 years, 41% males, 76% had no prior cardiac disease and 93% had a normal ECG. In 61% the decision not to refer was made outside office hours. In 18% the GP overruled the DR. Mandatory referrals up to 30 days were: Death 2 (1%), Infarction 15 (5%), Recurrent AP 8 (3%), VT tachycardia 3 (1%). Two patients died from cancer. 2 from possible cardiac causes several days after triage. In 6 patients with an infarction, the DR had advised admission. Conclusion. A prehospital DR can be used for accurate triage of patients with acute cardiac pathology with low risk of complications.