Monophasic action potential recordings (MAPs) increasingly are 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. In 137 simultaneously recorded TAP and MAP complexes, differentiated MAP 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 correlated (AT difference 4.1 ± 12 ms, mean ± SD). Extremely short or low-amplitude signals were observed in both TAP and MAP 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 wave forms even during VF, making them useful for studying VF in the in vitro setting including patients.

<table>
<thead>
<tr>
<th>TAP</th>
<th>MAP</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle Length</td>
<td>807.2 ±6ms</td>
<td>48.0 ±6.5ms</td>
</tr>
<tr>
<td>APD90</td>
<td>24.6 ±6ms</td>
<td>32.4 ±6.5ms</td>
</tr>
</tbody>
</table>

**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 Meynard, Jenny S. Marin, Mark Winkus, Frank 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 850 pts with AMI < 6 hours were randomised to prehospital or in-hospital thrombolysis with rt-PF. Time to treatment was reduced by 33 minutes by prehospital initiation of thrombo-lysis, but clinical outcome was similar in both groups. Pts were followed over a period of 34 ± 6 months. Two years survival was 89% for prehospital and 91% for in-hospital treatment. Even safety survival was 55% and 64% resp. However, in pts in both arms treated within 70 minutes after symptom onset survival was 98% versus 88% 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=0.04) 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.

**Do Monophasic Action Potentials Reliably Reflect Intracellular Action Potentials During Ventricular Fibrillation?**

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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(A), 14±2(B), and 21±2(C) Joules. PSD analysis demonstrated significant differences between group A & C at 2 frequency ranges: 3.5±0.4(A) vs. 5.9±0.9(C), p=0.02, and 21.1±1.2(A) vs. 21.6±1.3(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.