



 **CARDIAC ARRHYTHMIAS**

**INITIAL EXPERIENCE OF THE NOVEL MOBILE TELEMEDICINE SYSTEM IN REAL-TIME TRANSMISSION OF PREHOSPITAL 12-LEAD ECG FOR CARDIAC EMERGENCY**

ACC Poster Contributions

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**Background:** AHA/ACC guidelines recommend prehospital 12-lead ECG for patients with acute coronary syndromes (ACS). However, transmission of prehospital 12-lead ECG to emergency department (ED) is still not spread and ECG interpretation on the prehospital and ED is not established. Therefore, we developed and tested the clinical usefulness of the mobile telemedicine system (MTS) to transmit 12-lead ECG and other parameters between moving ambulances and physicians in cardiac emergency.

**Methods:** We set up the MTS on an ambulance in clinical condition. Real time 12-lead ECG was transmitted together with vital signs and live video during transferring the patient by the ambulance. We assess the efficacy and usefulness of the MTS for the triage on 90 cardiovascular emergency cases in the super-acute phase from June 2008 to May 2009. During the same period, we had 140 acute myocardial infarction (AMI) cases. Sixteen of these were used this MTS. Then, we compared various data between MTS (n=16) and non-MTS (n=124) groups with AMI patients.

**Results:** We applied the MTS for 90 patients during the transfer to our ED. The mean time of using this MTS was 13±8 minutes. Of these, there were 24 patients (27%) with ACS [including 15 ST elevation myocardial infarctions (STEMI), 1 Non-STEMI, 7 unstable anginas, and 1 recent MI], 11 patients (12%) with arrhythmia, 6 patients (7%) with acute aortic dissection, 5 patients (6%) with congestive heart failure and 44 patients (49%) with the others. Real-time 12-lead ECGs were checked in clinical condition and all of them were comparable to those original ECGs in the ambulance and were useful for the triage to diagnose all AMI patients before arrival at hospital and for the rapid activation of catheterization laboratory. Door to balloon time (DBT) was shorter in MTS group (median 88 minutes) compared with non-MTS group (median 104 minutes) ( $p<0.05$ ).

**Conclusions:** This is the first report to demonstrate the usefulness of transmitting real-time 12-lead ECG and vital signs using novel MTS for the patients with cardiac emergency. Accurate real-time 12-lead ECG transfer is useful for early diagnosis and the improvement in DBT for AMI patients.