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Study shows pre-hospital electrocardiography (ECG) for chest pain patients leads to faster transport

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(Medical Xpress) -- A study conducted by researchers from the University of California, San Diego School of Medicine along with colleagues from Rural/Metro Ambulance San Diego and the San Diego Fire-Rescue Department, shows that emergency medical personnel can obtain an electrocardiogram (ECG) in the field for chest pain patients without an increase in scene time or transport time to the hospital. Furthermore, in patients with an ST-elevation myocardial infarction (STEMI) diagnosed on the electrocardiogram– in the field prior to transporting to the hospital – care is actually expedited and the patients are more rapidly transported to the hospital. The study appears in the July 25 online version of the *Journal of American College of Cardiology*.

“Prior to this study, questions remained as to whether the time required in the field to perform an ECG would lead to a delay in transporting patients to the hospital. For patients suffering from the most severe form of heart attack (STEMI), where a significant amount of heart muscle is being damaged by the minute, time in the field and transport times were actually lowered,” said senior author, Ehtisham Mahmud, MD, professor of medicine, UC San Diego School of Medicine, chief of cardiovascular medicine and co-director, UC San Diego Sulpizio Cardiovascular Center. “This indicates that pre-hospital electrocardiography offers a more timely diagnosis and has the potential to reduce ischemic time and limit heart muscle damage.”

Coronary heart disease remains the leading cause of death in the United States. A number of pharmacologic therapies and advancements in interventional techniques and improved systems of care have led to significantly improved outcomes for heart attack patients. Pre-hospital ECG helps quickly make the diagnosis of a heart attack even prior to arrival at the hospital and enables faster delivery of optimal medical therapy and preferential transport of patients to hospitals with the ability to provide an angioplasty (balloon catheter used to open blocked artery with stent placement to improve blood flow to the heart).

"The combination of the pre-hospital ECG and our EMS system design helps get patients to the cath lab more quickly to open up the blocked artery," explained co-author and City Medical Director, James Dunford, MD, professor emeritus of clinical medicine, Department of Emergency Medicine, UCSD School of Medicine. "We deploy paramedics on both fire first-responders and on ambulances. This increases the efficiency of rapid patient assessment, diagnosis and as demonstrated in this study, clear benefit for heart attack patients."

This study analyzed the data on nearly 22,000 patients complaining of chest pain of suspected cardiac origin encountered over a five-year period by San Diego City paramedics.

Provided by University of California - San Diego

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