

Improving Heart Attack Care



Left to Right: Lynn Hart, RN; Barry Hackshaw, MD; Euthym Kontaxis, MD; Philip Shaver, MD;

According to the American Heart Association, more than one million Americans suffer heart attacks every year. Two-thirds of those are first time heart attacks, with the other one-third recurrences. Experts estimate that treating heart attacks costs the nation's health care system more than \$30 billion annually. The good news is that thanks to advances in cardiac care, nearly one million patients survive their heart attack.

Recently, a group of Eisenhower Medical Center physicians met to discuss advances in the treatment and care of heart attack patients. Participants included Eisenhower's Cardiologist Barry Hackshaw, MD, Director of the Cardiac Catheterization Laboratory; Lynn Hart, RN, Administrative Director of Emergency and Surgical Services Departments; and Euthym Kontaxis, MD, Chief of Emergency Medicine. Eisenhower Cardiologist Philip Shaver, MD moderated the discussion.

Dr. Shaver: Everyone here has had dramatic heart attack cases. I remember a case in the mid 1970s when a 50-year-old captain in the Navy came to the coronary care unit. It was obvious that he had suffered a major heart attack — myocardial infarction (MI) is the medical term. He was lucid, but was going into shock. I spoke to his wife and his children, and I told them we would do everything we could. "Everything we could" in 1977 was to give him morphine for pain, oxygen and drugs to raise his blood pressure. I sat with him for eight hours while he died. If that same individual had a major heart attack today, he would probably survive to enjoy his great-grandchildren. The technology and the science have progressed that much over the last 35 years. **Dr. Hackshaw, what is going on in the arteries of heart attack patients when they suffer a myocardial infarction?**

Dr. Hackshaw: The underlying problem is cholesterol plaque. Most people think a major obstruction causes a heart attack. But actually, the majority of heart attacks are caused by mild to moderate plaque that ruptures suddenly, forming a blood clot that obstructs the artery. If it is in one of the major three arteries, a large area of heart muscle is no longer supplied by blood, and the muscle begins to die. So "time is muscle," and the more quickly we can treat a heart attack patient, the better the outcome.

Dr. Shaver: Everyone should know the signs of a heart attack, which are not always typical. **Dr. Kontaxis, are there symptoms you are particularly attuned to that are atypical?**

Dr. Kontaxis: One thing we have learned over the years is to pay close attention to women, who don't usually have classic symptoms like chest pain radiating to the left arm. They can have epigastric [upper central region of the abdomen] discomfort, upset stomach, jaw pain, dizziness, shortness of breath—all atypical symptoms. Patients with diabetes will also have atypical symptoms.

Dr. Shaver: I'm also interested in your comments about the importance of calling 911 versus driving yourself to the hospital. We all have had patients who decided to drive to the hospital and died en route to the hospital, and the paramedics would have saved them.

Dr. Kontaxis: The diagnostics and the therapeutics start when the paramedics get there. In 26 years of medicine, I have run out to the parking lot to pull at least 50 patients out of cars, and put them on gurneys and bring them in, that are either dead or near dead. It's traumatic for the family, and it's tragic because some of them could have been saved if they'd called 911.

Dr. Shaver: So we've established that time is muscle. We want our patients to identify the symptoms. If you've had a heart attack in the past — don't assume it's indigestion...assume it's a heart attack. If it's a false alarm fine, we'll pat you on the back and send you home. But, don't stay home with your second heart attack! Be a little scared. If you have a lot of risk factors, if you have a family history, if you've been a smoker, have diabetes, hypertension or high cholesterol, come in. Let's talk about what happens next. **Dr. Kontaxis, you're in the ED [emergency department], what would you expect to hear from the paramedics who just picked up a patient suspected of having a heart attack? Do they notify you they're on the way?**

Dr. Kontaxis: Yes, they call as soon as they have assessed the patient. Our radio room is staffed 24 hours a day by a mobile intensive care nurse, who is trained to get all the relevant information, and if necessary, get a doctor who can give medical direction over the phone. Most of the paramedics are protocol driven, so once they've identified that it's chest pain, they'll do an in field 12-lead EKG [electrocardiogram], get IV [intravenous] access, put the patient on a monitor, give them oxygen and start therapy, which includes nitroglycerin and aspirin. All of this saves lives. In fact, anyone who has coronary disease should keep aspirin with them. It can be life saving for people to take a single aspirin early on.

Dr. Shaver: What happens next?

Dr. Kontaxis: The paramedics call the mobile intensive care nurse, who then notifies the doctor that a priority patient is coming in. We have a protocol—so the bed's ready; the team is prepared, and the cath [catheterization] lab is notified.

Ms. Hart: We have 24/7 coverage in the cath lab at Eisenhower, so the emergency room physician activates the cath lab and the cath lab team has 20 minutes to get to the cath lab.

Dr. Shaver: So that's the criteria — 3 a.m. You call them. They're here in 20 minutes.

Ms. Hart: In the meantime, we are treating the patient in the emergency department. We do an initial EKG within eight minutes of the patient's arrival. We take a brief history. We want to know when the symptoms started. We want to know if they've had heart problems of any kind. We want to know if they have any allergies and what medications they are taking.

Dr. Hackshaw: We also want to know if they've had bypass surgery, and if so, which arteries were grafted. For most heart attack patients who have had bypass surgery, it's the grafts that cause the heart attack, and not their native coronary arteries.

Dr. Kontaxis: We also see if the patient has an old EKG available for us to review, so that we can document any changes. Because we have electronic records here at Eisenhower, we are able to review any EKGs the patient has had here within minutes.

Dr. Shaver: Dr. Hackshaw, you're the cardiologist on call. So, you rush in here and rapidly assess the patient in the emergency room or the cath lab. What kind of a success rate do you have getting the artery open when a patient comes with a first-time myocardial infarction?

Dr. Hackshaw: We are able to open over 90 percent. Then, once we have addressed the primary blockage, and the patient has had an opportunity to recover from the heart attack, we will address any other blockages. With older patients, they often have multiple blood vessels involved.

Ms. Hart: Eisenhower is accredited by the Society of Chest Pain Centers. Their standards are that you must have a multidisciplinary team working on continuous quality improvement with regard to cardiac care. We were the fourth hospital in California to receive that accreditation. To receive it, we submitted data that showed we measured the time intervals from the patient's arrival, door to EKG, EKG to cardiologist's arrival. We look at every time interval for opportunities to shave off minutes, and that's how we've made such significant progress within the last few years.

Dr. Shaver: Is there anything else we can do to make the time to treatment even quicker?

Ms. Hart: We have a team of nurses and physicians that looks at every heart attack case that comes to this hospital. We meet every quarter and drill down for opportunities to shave off minutes. We are always looking for areas for improvement, and we give feedback to the team who treated the patient.

Dr. Shaver: There is no question that we are saving people from having fatal MIs...that mortality, without a doubt, is decreased, and started decreasing even before angioplasty with changes in lifestyle, but has been further improved with the urgent coronary interventions we have discussed.

But our work is not done once the patient has been treated for their heart attack. This is a lifetime disease, and there is a whole set of things that we need to do with patients to keep them from coming back. Because despite our best efforts, unless they are here very, very quickly, they have had some heart damage. The incidence of heart failure years after a heart attack is still a problem which is increasing in our population.

Dr. Hackshaw: The data indicates that a heart attack is something that gets the patient's attention. If you use that event to educate them about heart disease, and if you do it in the hospital, when you've got their attention, then there is a better chance of their sticking with their therapy which includes cholesterol lowering drugs.

Dr. Shaver: In addition to lipid lowering therapy, other lifesaving medications (beta-blockers), antiplatelet drugs (aspirin) and other specialized drugs that prevent subsequent heart failure (such as, angiotensin antagonists that reduce blood pressure), are now part of the discharge medications often prescribed. What we have listed is, interestingly, what is in the recently touted “polypill” (a pill that combines medications that simultaneously treat four cardiovascular risk factors — low density lipoprotein or LDL cholesterol, blood pressure, serum homocysteine, and platelet function).

Lynn, what is the role and availability of cardiac rehabilitation for our post-MI patients?

Ms. Hart: We really love to see patients referred to the Renker Wellness Center, to the Tamkin Cardiac and Pulmonary Rehabilitation program. We put them on an exercise program; we have nutritional classes; we have lifestyle education classes, and we have stress reduction classes, all geared to the cardiac patient.

Dr. Shaver: There is hard data that shows exercise saves lives — mortality decreases by 20 to 25 percent according to published data. The recommendations for post-MI exercise are the same as for the general population. It should be at least five days a week for 30 minutes a day. Patients also need to stop smoking. All of that is addressed in the cardiac rehab program.