Implantable Medical Device Warns Of Heart Attack

More than 30 percent of the one million heart attack victims in the United States each year die before seeking medical attention. Although widespread education campaigns describe the warning signs of a heart attack, the average time from the onset of symptoms to arrival at the hospital has remained at three hours for more than 10 years. In their upcoming *Ergonomics in Design* article, authors Mary Carol Day and Christopher Young study the benefits of the AngelMed Guardian®, an implantable medical device currently undergoing clinical trials that alerts users about a potential heart attack through a combination of vibrations, audible tones, and visual warnings. What makes the device distinctive is this combination of alert modes. Although vibrotactile (vibrating) alarms are sometimes used to warn medical personnel in operating rooms or ICUs of an emergency, very little research has focused on their potential as a self-monitoring device for patients. Auditory alarms are provided with selected implantable heart defibrillators, but research indicates that some patients - particularly the elderly - are unable to hear the alarms.
The device offers two levels of alarm urgency: A high-priority alarm indicates that the patient may be having a heart attack and should call 911, and a low-priority alarms indicates that a condition has been detected that requires a doctor visit within 48 hours. The alarms are provided by an implanted medical device, similar in size to a pacemaker, that is placed in the upper left chest, plus an external device, similar to a pager, that emits an auditory alarm and flashes a red or yellow warning light. In a series of studies with older adults designed to test the device’s design and user-friendliness, participants were able to tell the difference between the low-priority and high-priority vibration patterns and respond appropriately. They also reported that they liked the vibrating alarms and the redundancy of the auditory, visual, and vibrotactile warnings.

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