

Researchers find PDAs okay with pacemakers

With the dynamic evolution of wireless technology, Mayo Clinic researchers have been concerned about the potential effects of electromagnetic interference on heart pacemakers and implantable cardioverter-defibrillators. In the current issue of Mayo Clinic Proceedings, researchers report they did not detect interference from personal digital assistants (PDAs).

The findings are important because wireless communication has grown and advanced quickly. Hospitals and clinics have installed wireless local area networks (WLAN), which enable users to establish a wireless network connection with computers or other data devices throughout a building or multiple buildings that have the necessary data infrastructure in place. The wireless capabilities allow physicians and other health care professionals immediate access to a variety of information when evaluating and treating patients. Patients also are carrying wireless devices and need to understand if there would be any adverse reactions to implantable cardiac devices.

David Hayes, M.D., a Mayo Clinic physician and lead researcher in the study, says researchers did not expect to find interference based on their past experiences with other devices they have tested.

"When new devices are used near a patient with a life-sustaining implantable device, there is a potential of electromagnetic interference, and assessment of potential interactions is critical," says Dr. Hayes. "Despite the increasing sophistication of sensing circuitry in contemporary pacemakers and implantable cardioverter-defibrillators, these devices are still susceptible to electromagnetic interference and physicians need good data telling them which ones are or aren't. And as technology advances, we'll need continual testing to stay up to date."

In the Mayo Clinic study, testing was conducted between March 6 and July 30, 2003, using devices outside of the body. The cardiac devices were exposed to an HP Compaq iPAQ Pocket PC personal digital assistant fitted with a Cisco Aironet WLAN card. The testing of devices that had not been implanted was done for clinical safety purposes, says Dr. Hayes. However, he says testing of devices inside a patient's body would be easy to design and conduct.

"Such testing is necessary to provide definitive answers for individual patients," says Dr. Hayes. "For example, a patient who is pacemaker dependent may ask whether a specific WLAN device can be used and/or carried safely in a coat pocket when turned on near the patient's implanted device."

Dr. Hayes suggests that a template for further study could be from the cellular telephone study he led which was published in 1997 in the New England Journal of Medicine. That study tested numerous implanted devices with the most commonly available cellular telephones and with cellular telephones not yet commercially available but representing a different "frequency" or design. Testing for the PDA study followed methods provided in the American National Standards Institute/Association for the Advancement of Medical Instrumentation Pacemaker Committee protocol.

"As other wide local area network products are developed and made commercially available, additional testing will be needed to ensure clinical safety," Dr. Hayes says.

Researchers involved in the study were Jeffrey Tri, Jane Trusty and Dr. Hayes.

Source: Mayo Clinic

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