

JAMA editorial on ECG screening and cardiac risks

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Robert J. Myerburg, M.D., professor of medicine and physiology, and the American Heart Association Chair in Cardiovascular Research at the University of Miami Miller School of Medicine, contributed an editorial

to the *Journal of the American Medical Association* placing in perspective some of the conclusions in new recommendations from the U.S. Preventive Services Task Force (USPSTF) regarding the use of electrocardiogram screening for cardiovascular disease risk.

The USPSTF is an independent, volunteer panel of national experts in prevention and evidence-based medicine. Its recommendations statement was accompanied by a separate evidence report. The two articles and Myerburg's editorial will be published online at 11 a.m. on June 12. The USPSTF statement recommends against rest and exercise electrocardiogram (ECG) screening of asymptomatic adults at low risk for cardiovascular disease events, defined by cardiovascular risk profiles, because of the unlikelihood of it resulting in any improvement in health outcomes. It further states that current evidence is insufficient to assess the balance of benefits and harms associated with testing intermediate- and high-risk patients.

Myerburg agrees in part with the recommendation for low-risk asymptomatic patients, but points out that statistics derived from large population groups do not necessarily apply to individual patients. Furthermore there is a difference between screening based on routine ECGs at the time of annual preventive care visits, and a small number of repeat ECGs recorded periodically.

"It is not yet clear whether there is value to a single random resting ECG retained in the records of middle-aged adult patients, which may serve as a baseline for comparison when these patients present with nonspecific symptoms at a later time," he wrote in his editorial. For higher-risk patients, he believes clinicians should be focusing more on the power of "treatable risk factors" such as diabetes, hyperlipidemia, cigarette smoking, and hypertension, as well as the contribution of family history. Based on the USPSTF statement, when and how often to obtain screening ECG tests should be based on the magnitude of individual risk

score and the physician's clinical judgement.

"The problem of individual risk prediction remains a major challenge in clinical practice," said Myerburg. "In many of the studies estimating population risk, the effect size associated with statistically significant risk profiling is insufficient to make reliable statements about individual risk. This limitation also remains a challenge for the future."

As for USPSTF's concern about risk from ECG testing itself, such as adverse outcomes from unnecessary catheter interventions, "there is less concern about this as a risk-vs.-benefit question as physicians are educated about when to intervene," said Myerburg. "The diagnostic test is of less concern. Therefore, this issue is largely related to education regarding the need for intervention, as opposed to the resting or exercise ECGs themselves."

Another benefit of testing is the potential discovery of inherited diseases and conditions, such as a genetic trait known as long QT interval syndrome, which is linked to sudden cardiac arrest and the structural inherited diseases such as hypertrophic cardiomyopathy.

"Data from Italy suggest that patients with unrecognized or untreated long QT interval syndrome have a 13 percent mortality rate between infancy and age 40 years," he said. "Early recognition and effective therapies can have favorable impacts, and a single screening ECG may be sufficient."

Finally, Myerburg suggests testing special populations, such as competitive athletes undergoing pre-participation evaluations.

"This is a controversial area in the United States, although generally accepted elsewhere," he said. "It is similar to the genetic disorders, in that the probability of identification of disease is low because of the

prevalence rates, but the potential for adding years of quality life by prevention is large."

Myerburg points out the need for further research.

"As new knowledge about the subtleties of risk and risk prediction emerge from future research, reevaluation of the potential value of these procedures may lead to appropriate reclassification of risk," he said.

"The sciences contributing to medical practice are dynamic, and today's valid conclusions may be modified by future information."

Provided by University of Miami Leonard M. Miller School of Medicine

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