

Regular electrocardiograms may help physicians identify patients at risk of sudden cardiac death

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QRS duration (QRSd) is one of several measures of heart function recorded during a routine electrocardiogram (ECG). It is a composite of waves showing the length of time it takes for an electrical signal to get all the way through the pumping chambers of the heart. Prolonged QRSd is a sign of an abnormal electrical system of the heart and is often found when the heart isn't pumping efficiently.

Now, QRSd has been found to be a significant predictor of [sudden cardiac death](#), as reported by researchers from the Ronald O. Perelman Heart Institute at NewYork-Presbyterian Hospital/Weill Cornell Medical Center in the Aug. 17 online edition of the [European Heart Journal](#).

"Because an ECG is a routine part of every patient's annual physical exam, physicians can easily track it and take note of any change," says senior author Dr. Peter Okin, professor of medicine at Weill Cornell Medical College and a cardiologist at the Ronald O. Perelman Heart Institute at NewYork-Presbyterian Hospital/Weill Cornell Medical Center. "If QRSd increases, it suggests an increased risk of sudden cardiac death -- and that additional evaluation and treatment may be indicated. What we hope is that physicians will start paying more attention to QRSd as a warning signal. If they do, lives could be saved."

Investigators analyzed data drawn from the LIFE study -- a large, multicenter study of patients with [hypertension](#) conducted between 1995

and 2001. Designed to test the comparative effects of two medications on patients' blood pressure and overall cardiovascular health, the LIFE study generated an enormous quantity of data. Much of these were unused in the pursuit of the study's original aims, but they have provided fertile ground for many dozens of researchers, resulting in at least 150 articles published in professional journals since the conclusion of the LIFE study in 2001.

The authors of the new statistical study looked at some of these data as they investigated a possible association between prolonged QRSd and the risk of sudden cardiac death, and they found strong evidence of a link between the two.

"No one has ever really looked at this," says Dr. Okin. "Because of the wealth of data collected during the LIFE study, we were able to fine-tune our efforts and control for potential confounders, such as left bundle branch block (LBBB), an electrical conduction defect that affects the ability of the left ventricle to contract properly. We also controlled for abnormal enlargement of the left ventricle, known as left ventricle hypertrophy (LVH) -- another common cardiac abnormality associated with sudden cardiac death. Once these variables were controlled for in our analyses, a clear link between abnormal QRSd and the risk of sudden death emerged."

Dr. Okin and his colleagues found that link to be statistically significant, thanks to the scope of the LIFE study itself, which enrolled more than 9,000 patients over a seven-year period. In the United States, sudden cardiac death (SCD) accounts for more than half of all deaths from cardiovascular disease. Here, SCD is defined as unexpected death within 24 hours of cardiac symptoms, including those that cannot be traced to an identifiable cause, such as long-term congestive heart failure.

According to Dr. Okin, further studies will be needed -- especially those

that look at the predictive value of QRSd in broader populations of patients. It also remains to be seen whether QRSd is only a marker of risk or a potential target for medical treatment. Nonetheless, the current study gives doctors an important piece of information that can be used immediately in their clinical practice.

Source: New York- Presbyterian Hospital ([news](#) : [web](#))

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