People with diabetes are at higher risk of atrial fibrillation

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As the U.S. population keeps aging and gaining weight, diabetes is becoming increasingly common. Some research has associated diabetes with the most common kind of chronically irregular heartbeat, called atrial fibrillation, which can raise the risk for stroke and death. But results of past studies of diabetes and atrial fibrillation have conflicted. Now in the *Journal of General Internal Medicine* Dr. Sascha Dublin of Group Health Research Institute has linked diabetes to a 40 percent greater risk of developing atrial fibrillation; and she found this risk rises even higher the longer people have diabetes and the less controlled their blood sugar is.

For three years, Dr. Dublin and her colleagues tracked more than 1,400 Group Health patients who had newly recognized atrial fibrillation. They compared these "cases" with more than 2,200 "controls." The controls were matched to the cases by age, sex, year, and whether they were treated for high blood pressure; but unlike the cases, they had no atrial fibrillation.

Dr. Dublin's study was the first to examine the relationship between atrial fibrillation and the duration of patients' diabetes and their blood sugar levels. Unlike most prior studies, this one also adjusted for patients' weight, which is important because both diabetes and atrial fibrillation are more common in heavier people. Here is what she found:

- Patients with diabetes were 40 percent more likely to be

diagnosed with atrial fibrillation than were people without diabetes.

- The risk of atrial fibrillation rose by 3 percent for each additional year that patients had diabetes.

- For patients with high blood sugar (glycosylated hemoglobin, also known as HBA1c more than 9 percent), the risk of atrial fibrillation was twice that for people without diabetes.

- But patients with well-controlled diabetes (HBA1c 7 percent or less) were about equally likely to have atrial fibrillation as people without diabetes.

"When a patient with diabetes has symptoms like heart palpitations, clinicians should have a higher level of suspicion that the reason could be atrial fibrillation," Dr. Dublin said. "This heart rhythm disturbance is important to diagnose, because it can be treated with medications like warfarin that can prevent many of the strokes that the atrial fibrillation would otherwise cause."

It is hard to establish which comes first—diabetes or atrial fibrillation—with this kind of case-control study, unlike a randomized trial, Dr. Dublin said. "But our finding that the risk of atrial fibrillation is higher with longer time since patients started medications for diabetes, and with higher blood glucose levels, is strongly suggestive that diabetes can cause atrial fibrillation." She used time since starting diabetes medication as a measure of how long patients had the disease.

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Research, the Hartford Foundation, the Atlantic Philanthropies and the Starr Foundation. The National Heart, Lung, and Blood Institute funds the Heart and Vascular Health Study, which collects data on Group Health patients newly diagnosed with atrial fibrillation and other cardiovascular conditions. The study of atrial fibrillation, led by Dr. Dublin's co-author Dr. Susan Heckbert, aims to find new factors that raise the risk of developing this quivering of the heart's upper chambers (atria).

About one in 100 people—and nearly nine in 100 people over age 80—have atrial fibrillation, according to Dr. Heckbert, a professor of epidemiology and scientific investigator in the Cardiovascular Health Research Unit at the University of Washington (UW) and an affiliate investigator at Group Health Research Institute. In many cases, atrial fibrillation has no symptoms, and it is not necessarily life threatening. But it can cause palpitations, fainting, fatigue, or congestive heart failure. Atrial fibrillation can also make blood pool—and sometimes clot—in the atria. When parts of clots break off and leave the atria, they can lead to embolic strokes, as happens in more than 70,000 Americans a year.

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