Effect of Antihypertensive Drugs on Risk for Atrial Fibrillation

What is the problem and what is known about it so far?
Atrial fibrillation is an irregular heartbeat that can prevent the heart from pumping enough blood, which can lead to fainting, difficulty breathing, and other symptoms. High blood pressure is one of the risk factors for atrial fibrillation. Drugs that lower blood pressure reduce the risk for atrial fibrillation. Some drugs for lowering blood pressure may also reduce the risk for atrial fibrillation by other mechanisms, and these drugs should prevent more atrial fibrillation than drugs that only lower blood pressure. Clinical trials that randomly assign persons with high blood pressure to a placebo or an active drug and record the frequency of atrial fibrillation have produced conflicting results. Older trials found no difference in the frequency of atrial fibrillation with different drugs, but more recent trials have found that some drugs prevent atrial fibrillation more effectively than others.

Why did the researchers do this particular study?
Instead of doing another clinical trial, the researchers used electronic medical records for outpatients with high blood pressure to identify which drugs they used and to measure the frequency of atrial fibrillation with each drug.

Who was studied?
More than 600 000 patients in the United Kingdom.

How was the study done?
The researchers identified more than 4600 patients who developed atrial fibrillation while receiving drugs to lower their blood pressure. They also identified patients who did not develop atrial fibrillation while receiving drugs to lower their blood pressure and were of the same sex and similar ages. The researchers then compared the frequency of atrial fibrillation in patients taking different drugs to lower their blood pressure.

What did the researchers find?
Among patients who received only 1 class of drug to lower blood pressure, atrial fibrillation was less frequent with angiotensin-converting-enzyme inhibitors, angiotensin-receptor blockers, and β-blockers than with calcium-channel blockers.

What were the limitations of the study?
The investigators could not identify why patients were receiving different drugs, and the reasons might have been associated with the frequency of atrial fibrillation.

What are the implications of the study?
In patients with high blood pressure, mechanisms other than blood pressure may be important causes of atrial fibrillation and different drugs may reduce the frequency of atrial fibrillation through different mechanisms. Doctors and patients may want to consider this possibility when selecting a drug to lower blood pressure.