Diabetes and Atrial Fibrillation

Cardiovascular disease (CVD) is more common among people with diabetes than among the general population, but the link between diabetes and CVD risk is particularly evident in women. A seven-year study involving almost 35,000 Kaiser Permanente patients revealed that women with diabetes are more likely to develop atrial fibrillation than men with diabetes. In atrial fibrillation, disorganized electrical signals cause the heart to pump before the ventricular chambers fill completely. As a result, blood has time to form clots and, thereby, increase the risk of having a stroke. Signs of atrial fibrillation include an irregular and often rapid heartbeat, fatigue, and shortness of breath.

This observational study, published in Diabetes Care (October 2009), involved over 17,000 patients with diabetes and an equal number of nondiabetic controls, matched by age and gender (10,213 diabetics were enrolled by January 1, 1999, and another 7,159 by 31 December 2004). The researchers followed the participants “until they died, left the [HMO], or until 31 December 2008.” During the study, both male and female diabetics were more likely to develop atrial fibrillation than nondiabetics; but the increased risk was a significant 26% in women after researchers controlled for factors like obesity and blood pressure. Lead author Greg Nichols told journalist Tom Vogt, “...women typically have lower rates than men of cardiovascular disease. ‘With diabetes, the risk is equal,’ he said.”

Drug-Induced Liver Injury

Drug-induced liver injury (DILI), which includes anything from mild biochemical abnormalities to liver failure, is the primary adverse effect that causes pharmaceutical companies to shelve a new drug or take an older one off the market. Most DILIs are idiosyncratic, meaning that some individuals are susceptible to liver injury by a specific drug for unknown reasons. Idiosyncratic DILI occurs “in less than 1 per 10,000 to 100,000,” according to studies cited by Naga Chalasani et al.; but it accounts for 13% to 17% of all acute liver failure cases.

Diagnosing DILI is very difficult because practitioners need to exclude other causes of liver disease. Also, adverse liver reactions can occur anywhere from 5 to 90 days after receiving the medication. While most people recover after discontinuing the causative drug, about 6% are left with chronic liver disease. Doctors have no solutions for people with acute liver failure due to DILI other than referring them for a liver transplant. In order to gain a better understanding of DILI, the National Institutes of Health established the Drug-Induced Liver Injury Network (http://dilin.dcri.duke.edu) in 2003, using a consortium of five university medical centers.

The Drug-Induced Liver Injury Network published its first results of an ongoing prospective study in Gastroenterology (December 2008). Patients with acetaminophen-induced liver injury were not included in the study. Acetaminophen, commonly found in over-the-counter medications for fever and pain (e.g., Tylenol), is already known to cause serious liver damage in susceptible people “with doses not far beyond labeled dosing” (PDR Nurse’s Drug Handbook, 2005 edition). In the DILI Network study, liver injury was definitely or “highly likely” drug-induced in 73% of the 300 enrolled patients, “probable” in 14%, and “possible” in 10%, according to expert opinion. Most of the remaining nine patients were eventually diagnosed with acute hepatitis C or other condition. The lack of an international standard for diagnosing DILI has made this work difficult and may affect the study’s accuracy. Seventy-three percent of the DILI-suspected patients (n = 217) were taking just one medication. Nine percent were taking a dietary supplement (n = 28). The remaining 18% (n = 55) were taking more than one prescription medicine or a combination of prescription and dietary supplement(s), making it difficult to determine if the combination or a single product in itself was linked to liver injury.

Antimicrobials top the list of liver-damaging medications among these patients, accounting for 45.5% of the 217 who took just one drug. The most common offenders were the antibiotics amoxicillin/clavulante (n = 23), trimethoprim-sulfamethoxazole (n = 13), nitrofurantoin (n = 13), and the antitubercular agent isoniazid (n = 13). Other drug groups implicated in liver injury include antiepileptic agents, antidepressants, antipsychotics, and other central nervous system drugs (15%), immunomodulatory agents (5.5%), pain-relievers other than acetaminophen (five%), and lipid-lowering agents (3.4%). Muscle-building and weight-loss products were the two most common classes of supplements suspected to cause DILI in this study.
