Avoiding Drug Interactions in Endocrine Patients

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WASHINGTON — Simply placing a list of common drug interactions on patient charts will make it easier to identify such interactions in patients with endocrine disorders, John B. Tourtelot, M.D., said at a consensus conference on patient safety and medical system errors in diabetes and endocrinology.

"This is such a simple thing to do, but no one does it anymore or very few people do," he said.

Not only will it be helpful to have a drug interaction list available, but the information can help patients and consultant physicians know why a particular medication is prescribed, said Dr. Tourtelot, an endocrinologist at the Morton Plant Hospital, Clearwater, Fla.

Drug interactions in diabetes and endocrine disorders are a "significant problem," he said, adding that much of the data on adverse drug reactions come from hospitalized patients.

A metaanalysis of 39 prospective studies from U.S. hospitals estimated that approximately 2.2 million serious adverse drug reactions and 106,000 fatal reactions were recorded in 1994. This made adverse drug reactions the sixth leading cause of death in the United States (JAMA 1998;279:1200-5).

"The stuff you don't hear about comes from the emergency room, it comes from ambulatory care, and a lot of it just isn't reported," Dr. Tourtelot said. Adverse drug reactions are a "far greater issue than what we're seeing statistically."

In one study of elderly patients in an ambulatory care setting, 28% of 1,523 adverse drug events were considered preventable. The preventable events included several medication categories commonly used in elderly patients with endocrine disorders, such as cardiovascular and hypoglycemic agents (JAMA 2003;289:1107-16).

Three factors should be considered when evaluating the potential significance of a drug interaction:

► **The magnitude of the interaction.** This depends on the extent to which the drug in question is affected by another drug or environmental factor.

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A good rule of thumb is that if a drug interaction affects the efficacy of a drug by 30% or less, then most interactions at that level will not be significant, Dr. Tourtelot said.

► **The documentation of interaction in human studies.** Much of the data on drug interactions are first obtained in animal studies and these studies may show changes in pharmacokinetics that are not related to how the drugs interact in humans.

Absorption can be altered by a variety of factors, including pH and the presence of cations and foods. These factors can delay the onset of therapy and increase or decrease its effectiveness. For example, calcium and other cations can prevent the absorption of levothyroxine.

Changes in the metabolism of a drug could delay or speed up the excretion of that drug.

Diabetic patients with chronic renal insufficiency and many other patients with endocrine disorders will have abnormalities in excretion. "It may not be a significant interaction in a nondiabetic, but it becomes significant when they have a change in their ability to excrete a drug," he said.

► **The therapeutic index of a drug.** At high doses, many medications reach the end of their therapeutic value and approach their threshold for toxicity.

Some drugs have a wide therapeutic index and only reach toxic levels at doses higher than those that have any kind of therapeutic value, while other drugs may have a very narrow therapeutic index or a therapeutic index where toxicity occurs simultaneously with therapy, as in the case of agents used in chemotherapy regimens.

The conference was cosponsored by the American College of Endocrinology and the American Association of Clinical Endocrinologists. ■