rates of type 2 diabetes mellitus [1,2], with an estimated 14.4% of the U.S. adult population having either diagnosed diabetes, impaired fasting glucose, or undiagnosed diabetes [3]. Over half of diabetic patients ultimately require insulin therapy [4]. However, insulin therapy has several disadvantages that can limit its effectiveness in the clinical setting. Dosing regimens can be complex or unpleasant, and weight gain is virtually inevitable. Furthermore, intensive insulin therapy is associated with increased episodes of hypoglycemia. Data on the effectiveness of alternative pharmacologic interventions for individuals who have failed standard double therapy with a sulfonylurea and metformin are needed to help identify acceptable non–insulin-based therapies.

Pioglitazone is a thiazolidinedione that can improve glycemic control in patients already on metformin or a sulfonylurea [5]. This open-label trial compared bedtime insulin with pioglitazone. While the results of this study are promising, several limitations exist. First, the study was very small. This substantially limited the overall power of the study to detect a difference in several of its key outcomes. Reductions in HbA_{1c} levels and fasting glucose levels tended to be lower in the insulin-treated groups, although this difference was not statistically significant. Second, the study was conducted for a short duration. Relapse rates for diabetics are high, and it is unclear if patients on one particular therapeutic option may be less likely to relapse. Finally, despite the clinical trial setting, only a minority of patients achieved optimal control in either group. These outcomes underscored the challenges in treating diabetics and also makes the authors' results less appealing for clinical practice.

Applications for Clinical Practice

For patients with type 2 diabetes who have not achieved optimal control with metformin and an oral insulin secretagogue, the addition of either bedtime NPH insulin or pioglitazone appears efficacious at improving glycemic control; however, only a minority of patients actually achieve optimal glycemic control. Pioglitazone offers the additional advantage of being an oral agent and being associated with fewer hypoglycemic episodes. Studies of longer duration and involving larger numbers of diabetics are needed.

–*Review by Harvey J. Murff, MD, MPH*

References

1. Narayan KM, Boyle JP, Thompson TJ, et al. Lifetime risk for diabetes mellitus in the United States. JAMA 2003;290:1884–90.
2. Blanchard JF, Ludwig S, Wajda A, et al. Incidence and prevalence of diabetes in Manitoba, 1986-1991. Diabetes Care 1996;19:807–11.
3. Centers for Disease Control and Prevention. Prevalence of diabetes and impaired fasting glucose in adults—United States, 1999-2000. MMWR Morb Mortal Wkly Rep 2003;52:833–7.
4. Harris MI. Health care and health status and outcomes for patients with type 2 diabetes. Diabetes Care 2000;23:754–8.
5. Kiayias J, Vlachou ED, Theodosopoulou E, Lakka-Papadodima E. Rosiglitazone in combination with glimepiride plus metformin in type 2 diabetics patients. Diabetes Care 2002; 25:1251–2.

A Prediction Rule for Serious Outcomes of Syncope in Emergency Room Patients May Reduce Admissions

Quinn JV, Stiell IG, McDermott DA, et al. Derivation of the San Francisco Syncope Rule to predict patients with short-term serious outcomes. Ann Emerg Med 2004;43:224–32.

Study Overview

<u>Objective</u>. To derive a clinical prediction rule that identifies patients at risk for short-term serious outcomes following an episode of syncope or near syncope.

<u>Design</u>. Prospective cohort study.

<u>Setting and participants</u>. All patients presenting to an urban emergency department (ED) with syncope or near syncope were enrolled. Patients with altered mental status, substance abuse, seizure, or trauma were excluded. Treating physicians recorded all potential clinical predictors at the time of enrollment. All patients were followed for 7 days following their enrollment date.

<u>Main outcome measures</u>. Sensitivity and specificity of a clinical rule (San Francisco Syncope Rule) to predict a serious outcome within 7 days of initial ED evaluation. Serious outcomes were defined broadly as conditions requiring hospitalization or return visit to the ED including death, myocardial infarction, stroke, hemorrhage, and pulmonary emboli.

Main results. Of 684 patients evaluated, 79 developed a serious outcome. A clinical prediction rule to predict serious outcomes was created using the following variables: an abnormal electrocardiogram (ECG), a complaint of shortness of breath, hematocrit < 30%, systolic blood pressure < 90 mm Hg, and a history of congestive heart failure. The rule was 96% sensitive (95% confidence interval [CI], 92%–100%) and 62% specific (95% CI, 58%–66%) in predicting a serious outcome. If used as admission criteria, the rule could have reduced the number of admissions by 10%.

Conclusion. The San Francisco Syncope Rule can help predict serious outcomes and, if validated, would be an important tool for making disposition decisions in ED patients with syncope or near syncope.

Commentary

When evaluating patients with syncope or presyncope, the challenge is to determine whether the syncope is caused by a benign physiologic derangement or life-threatening condition. A cause is never identified in 38% to 47% of outpatients, and although malignant causes are uncommon, a missed diagnosis can be devastating [1]. ED patients with syncope have a higher prevalence of arrhythmias, myocardial infarctions, and strokes, and it becomes even more critical in this population to efficiently identify those at risk for serious outcomes. The usual strategy to risk stratify patients with syncope includes a thorough history, physical examination, and ECG, followed by further specialized testing if necessary. Routine use of electroencephalogram, tilt table testing, and cardiac monitoring has a low diagnostic yield. A clinical prediction rule that identifies historical elements or test findings with the greatest predictive value can help in the development of standardized workups that are efficient and minimize the risk of missing a diagnosis.

The cohort assembled for this study was required to have syncope or near syncope as a chief complaint and had a broad range of accompanying complaints, including shortness of breath and chest pain. By excluding patients with a known precipitating cause (eg, intoxication or definite seizure), the authors narrowed the study population to diagnostic unknowns. Patients were followed for 7 days for "serious outcomes," which was defined broadly to encompass the potential consequences of syncope. Fifty predictors were tested for a relationship with the occurrence of serious outcomes. The finding that abnormal ECGs, dyspnea, history of congestive heart failure, and significant anemia or hypotension were significant predictors of the outcome is consistent with previous work and would make for a quick initial clinical screen for these patients.

The authors acknowledge most of the weaknesses and limitations of their study design. Patients were not followed beyond 7 days, and poor outcomes may have occurred outside this interval. The rule was not 100% sensitive and could not replace clinical judgment. It is unclear whether the rule performs better than standard evaluation by ED physicians. Many of these concerns will need to be addressed in a validation study.

Applications for Clinical Practice

The San Francisco Syncope Rule will likely prove a useful tool to risk stratify patients presenting to the ED with syncope using an ECG, history of congestive heart failure or dyspnea, and the presence of anemia or hypotension.

–Review by Josh F. Peterson, MD, MPH

References

1. Kapoor WN. Evaluation and management of the patient with syncope. JAMA 1992;268:2553–60.

How Often Do Elderly Patients Receive Inappropriate Medications?

Goulding MR. Inappropriate medication prescribing for elderly ambulatory care patients. Arch Intern Med 2004;164:305–12.

Study Overview

Objective. To describe trends in inappropriate medication prescribing and predictors of inappropriate prescribing among elderly outpatients.

Design. Cross-sectional cohort study.

Setting and participants. National sample of physician office visits and hospital outpatient department visits for patients aged ≥ 65 years during 1995 to 2000. Medication prescribing was reported by either physicians or trained office personnel at the time of the clinical encounter.