

Rural Healthcare



Hospital Peer Review

March, 2009

Hospital Peer Review is a monthly newsletter sponsored by the Rural Healthcare Quality Network to alert Critical Access Hospitals regarding findings from the Peer Review Program. Summarized are a few of the key findings and best practices that would be helpful for other critical access hospitals to be knowledgeable about. This newsletter is edited by Myron Bloom, Medical Director and he can be reached at drmbloom@msn.com.

With Syncope, Who Do You Keep?

Syncope is a symptom complex that is composed of a brief loss of consciousness associated with loss of postural tone that spontaneously and completely resolves without medical intervention. Causes of syncope include any process that transiently reduces cerebral perfusion and thus syncope is a syndrome rather than a diagnosis or distinct disease entity. The differential diagnosis of syncope includes such potentially life-threatening causes as subarachnoid hemorrhage, acute coronary syndrome, malignant dysrhythmia, aortic dissection, and pulmonary embolism, as well as acute occult hemorrhage. A variety of drugs can be associated with syncope. Some are relatively benign causes (orthostatic hypotension) while others are associated with potentially lethal arrhythmias: diuretics, anti-anginal agents, anti-hypertensives, antidepressants, antiarrhythmics, antipsychotics as well as other drugs associated with QT prolongation. The differential diagnosis also includes more benign entities, such as vasovagal events, orthostasis, autonomic disorders, and situational syncope (e.g., Carotid sinus syncope, cough syncope, micturition syncope, and defecation syncope).

The evaluation begins with a careful history and physical examination and a 12-lead electrocardiogram (the only test uniformly recommended for all patients with syncope). Doing blood counts and comprehensive chemistry panels without concomitant suspicion of abnormalities has a very low yield in the setting of syncope. Specifically, the position of the ACP is: "Routine use of basic laboratory tests is not recommended; tests should be done only if they are specifically suggested by the results of the history or physical examination." Similar to the process of chest pain evaluation, managing syncope has shifted from an effort to determine a specific diagnosis to that of risk stratification.

Perhaps the earliest paper of major significance on risk stratification and disposition of syncope patients in the ED was that by Martin and colleagues in 1997. A total of 252 patients were prospectively evaluated in the derivation cohort (374 in the validation cohort, performed at the same center) Outcome was arrhythmia or death up to 1 year after evaluation. Four predictors emerged: (1) age > 45 years, (2) history of ventricular arrhythmia, (3) history of CHF, and (4) abnormal ECG. One-year mortality was <2% in patients with no risk factors, <7% in those with 1 risk factor, and 27-37% in patients with 3 or 4 risk factors.

Martin TP, Hanusa BH, Kapoor WN. Risk stratification of patients with syncope. *Ann Emerg Med.* 1997;29:459-466. Multivariate predictors of arrhythmia or 1-year mortality were an abnormal ED ECG (odds ratio [OR], 3.2; 95% confidence interval [CI], 1.6 to 6.4); history of ventricular arrhythmia (OR, 4.8; 95% CI, 1.7 to 13.9); history of congestive heart failure (OR, 3.2; 95% CI, 1.3 to 8.1). Arrhythmias or death within 1 year occurred in 7.3% (derivation cohort) to 4.4% (validation cohort) of patients without any risk factors and in 80.4% (derivation) to 57.6% (validation) of patients with three or four risk factors. CONCLUSION: Historical and ECG factors available at the time of presentation can be used to stratify risk of arrhythmias or mortality within 1 year in ED patients presenting with syncope.

An Italian study in 2003 also yielded 4 risk factors predictive of 1-year mortality: (1) age > 65 years; (2) history of cardiovascular disease (including coronary artery, valvular heart, cerebrovascular, primary myocardial, and peripheral vascular disease and CHF); (3) syncope without prodrome; (4) abnormal ECG. A 0 risk score was associated with 0% mortality in both groups, and a score of 1 was associated with < 1% mortality at 1 year in both cohorts. Scores of 3 (mortality of 35% derivation/29% validation sets) and 4 (mortality of 57% and 53% derivation and validation sets, respectively) carried significantly greater risk.

Colivicchi F, Ammirati F, Melina D, et al. Development and prospective validation of a risk stratification system for patients with syncope in the emergency department: the OESIL risk score. *Eur Heart J.* 2003;24:811-19. Mortality increased significantly as the score increased in the derivation cohort (0% for a score of 0, 0.8% for 1 point; 19.6% for 2 points; 34.7% for 3 points; 57.1% for 4 points; $p < 0.0001$ for trend). A similar pattern of increasing mortality with increasing score was prospectively confirmed in a second validation cohort of 328 consecutive patients (178 females; mean age, 57.5 years). CONCLUSIONS: Clinical and electrocardiographic data available at presentation to the emergency department can be used for the risk stratification of patients with syncope. The OESIL risk score may represent a simple prognostication tool that could be usefully employed for the triage and management of patients with syncope in emergency departments.

The San Francisco Syncope Rule initially appeared in 2004 and was validated with slight modifications by the same group in 2006 with outcomes measured at 7 days in the initial study, and 30 days in the validation study. Serious outcomes were defined as shown in [Table 4](#). The criteria demonstrated 96% sensitivity (95% confidence interval [CI], 92% to 100%) and 62% specificity (95% CI, 58% to 66%) for serious outcomes at 7 days. If the authors had added "age > 75 years," the sensitivity would have increased to 100% (picking up 3 patients missed by the rule).

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;43:224-232. There were 684 visits for syncope, and 79 of these visits resulted in patients' experiencing serious outcomes. Of the 50 predictor variables considered, 26 were associated with a serious outcome on univariate analysis. A rule that considers patients with an abnormal ECG, a complaint of shortness of breath, hematocrit less than 30%, systolic blood pressure less than 90 mm Hg, or a history of congestive heart failure has 96% (95% confidence interval [CI] 92% to 100%) sensitivity and 62% (95% CI 58% to 66%) specificity. If applied to this cohort, the rule has the potential to decrease the admission rate by 10%. CONCLUSION: The San Francisco Syncope Rule derived in this cohort of patients appears to be sensitive for identifying patients at risk for short-term serious outcomes.

Quinn JV, McDermott D, Stiell I, et al. Prospective validation of the San Francisco Syncope Rule to predict patients with serious outcomes. *Ann Emerg Med.* 2006;47:448-454. Seven hundred ninety-one consecutive visits were evaluated for syncope, representing 1.2% of all ED visits. Fifty-three visits (6.7%) resulted in patients having serious outcomes that were undetected during their ED visit. The rule was 98% sensitive (95% confidence interval [CI] 89% to 100%) and 56% specific (95% CI 52% to 60%) to predict these events. In this cohort, the San Francisco Syncope Rule classified 52% of the patients as high risk, potentially decreasing overall admissions by 7%. If the rule had been applied only to the 453 patients admitted, it might have decreased admissions by 24%. CONCLUSION: The San Francisco Syncope Rule performed with high sensitivity and specificity in this validation cohort.

The American College of Emergency Physicians guidelines advise admission for any patient with syncope and a history or physical evidence of congestive heart failure, ventricular arrhythmia or valvular heart disease, those with chest pain or findings compatible with an acute coronary syndrome and those with an EKG demonstrating ischemia, prolonged QT interval or bundle branch block. Admission should be considered for those over the age of 60, those with known coronary artery disease or congenital heart disease, a familial history of sudden death and younger patients with exertional syncope without an obvious benign etiology for the syncope. In addition, the American College of Physicians recommendations advise admission for those on medications associated with arrhythmias and patients with symptoms suggestive of a TIA or stroke.