Implantable Loop Recorders: Dollars and Sense*

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Syncope is a common, often perplexing clinical problem causing emotional stress to patients, their families, and often, the physicians caring for them. In a large, 26-year prospective study of men and women ages 30 to 62 years, 3% of men and 3.5% of women experienced at least one syncopal episode (1). That study excluded adolescent and elderly populations. Syncope has been reported in up to 47% of healthy college men (2) and has been shown to have a 6% one-year incidence in elderly institutionalized patients 75 years and older (3). Although many who experience syncope do not seek medical advice, syncope accounts for approximately 3% of emergency room visits and 1% to 6% of hospital admissions in the U.S. (4,5).

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device capable of storing electrograms after patient activation for up to two years. Using this technique, an etiology for syncope was established in $94\%$ of patients, with bradyarrhythmias predominating ($18\%$). In a multicenter series, implantable loop recorders established a symptom-rhythm correlation in $86\%$ of patients with syncope during follow-up ($19\%$). However, $16\%$ of patients were unable to properly activate the device, and $4\%$ developed postoperative wound complications. Of $21$ patients with documented arrhythmias, $18$ had bradyarrhythmias and $3$ had tachyarrhythmias. Potential problems with this technique include an inability to distinguish bradycardia by mechanism, the need for an invasive procedure with associated operative risks, and the possibility of placement in a high-risk patient who develops a fatal arrhythmia during monitoring ($20\%$).

A randomized assessment of the implantable loop recorder was recently reported ($21\%$). Sixty patients with unexplained syncope, left ventricular ejection fraction $>35\%$, and history not typical for neurally mediated syncope were randomized into conventional testing (external loop recorder followed by tilt and EP study) or one-year prolonged monitoring strategies and given the option of crossover if the initial evaluation was negative. In this highly selected study group, prolonged monitoring was more likely to result in a diagnosis than was conventional testing ($55\%$ vs. $19\%$). In this issue of the Journal, the cost implications of this randomized trial were evaluated by Krahn et al. ($22\%$). Using regionalized Canadian cost estimates, this study concluded that the cost per diagnosis using the prolonged monitoring strategy was significantly less than the cost of conventional testing ($\$5,852$ vs. $\$8,414$) despite a higher initial cost investigation ($\$2,731$ vs. $\$1,683$). A greater incremental cost effectiveness ratio was reported after combining crossover data. Whether these data can be extrapolated to global investigations of syncope remains unclear; however, trends derived from this work may promote more cost-effective diagnostic strategies in selected patients.

Cents and sensibility. The need for cost containment in the evaluation of syncope has been long recognized. In 1982, the average cost per patient undergoing syncope evaluation in the U.S. was $\$2,600$, with an estimated cost of $\$24,000$ per diagnosis ($23\%$). Annual per-patient cost has doubled in recent analysis ($24\%$). Estimated costs per diagnostic yield for commonly performed tests have been reported to range from $\$529$ for the external loop recorder to $\$73,260$ for EP testing in patients without structural heart disease ($25\%$). Nontargeted evaluations produce unnecessary expense, as demonstrated by patients with typical histories for vasodepressor syncope, in whom baseline testing resulted in elevated diagnostic costs (up to $\$16,000$) above the cost of a confirmatory tilt study ($\$453$) ($26\%$). In the Canadian study reported in this issue, $60\%$ of patients underwent nondiagnostic neurologic testing before randomization into the clinical trial at an average cost of $\$1,327$ ($22\%$).

Accurate and cost-effective diagnostic strategies must be employed in the evaluation of syncope. Funding for medical services is limited, and fiscal waste cannot be tolerated. Low-yield and unnecessary tests should be avoided. The use of implantable loop recorders in selected patients helps further the combination of cost containment and diagnostic accuracy in unexplained syncope. Targeted, judicious use of diagnostic testing is imperative in reducing costs and easing the economic burden of this perplexing and common medical problem.

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REFERENCES


