

Neurocardiogenic Syncope: When and How to Treat?

Blair Grubb, MD and Daniel J. Kosinski, MD,
Electrophysiology Section, Division of Cardiology,
Department of Medicine, The Medical College of Ohio,
Toledo, Ohio

Neurocardiogenic syncope is a very common cause of syncope. In some patient populations, such as children and adolescents, it is the most common cause of syncope. Yet, despite numerous publications on the subject, decisions on treatment of the disorder remain ambiguous.

In patients with frequent episodes of neurocardiogenic syncope, the decision to treat is obvious. However, in patients with a single or infrequent episode(s), the decision to treat is often times very difficult. If such patients have a clear precipitant, such as phlebotomy, treatment beyond education may not be necessary. In most patients with a single or infrequent episode(s), we look principally at two clinical factors. The first factor we consider is whether or not a reasonable prodrome of symptoms occurred prior to syncope. The second clinical factor is the lifestyle and/or occupation of the patient. For instance, a patient with a sedentary lifestyle and two syncopal episodes usually does not require treatment if the episodes occur with a 30–60 second prodrome. This would allow the patient time to sit or lie down and thus avoid injury. Conversely, a truck driver with a single episode would be appropriate to treat if the episode occurred with little or no prodrome. We realize these guidelines are vague. However, the decision to treat in these cases is often difficult, and physicians should be



afforded considerable latitude in planning therapy based on the patient's clinical circumstance.

In addition, it is our opinion that any patient with neurocardiogenic syncope and clinical episodes that occur while in the seated position require treatment. These patients are at risk for syncope during activities such as driving or operating other vehicles, industrial equipment, etc. In these individuals, the customary method of lying down in order to abort an episode is often ineffective and/or unrealistic.

Treatment

Numerous treatment modalities have been shown to be effective in neurocardiogenic syncope. The physician must choose a treatment plan based on the patient's age, tilt response, comorbidities and other medications the patient may be taking.

If at all possible, nonpharmacologic treatment should be employed. The first issue to consider is whether or not the patient is taking medication that can be pro-syncope. Such medications would include diuretics, vasodilators and/or centrally acting agents such as MAO inhibitors or tricyclic antidepressants. If such medications can safely be reduced or withdrawn, this should be considered.

Education should be provided encouraging the patient to avoid volume depletion. The patient should be advised to moderately increase salt intake and to sit or lie down at the first sign of an impending event. However, this type of advice is sometimes unhelpful. Some patients have little or no prodrome warning and in other patients, salt loading

Table 1. Therapy for neurocardiogenic syncope

Medication/Typical Dose	Mechanism of Action	Advantages	Disadvantages
Fludrocortisone .1–.4 mg/qd	Volume expansion; vasoconstriction	Relatively safe; reasonably priced	Headache; potential for hypokalemia
<i>β</i> -blocker therapy			Contraindicated in some patients;
-Inderal 80–160 mg qd	<i>β</i> -adrenergic blockade	relatively safe; reasonable cost	inappropriate for patients with
-metoprolol 50–100 mg qd			severe bradycardic episodes
Midodrine 5–10 mg tid	Alpha agonist; vasoconstriction	Very effective	Supine hypertension; tid dosing; headache
Methylphenidate 5–10 mg tid	Vasoconstriction	May benefit patients with fatigue; stimulant properties	Headache; stimulant side effects; addictive potential
Clonidine .1–.3 mg bid	Centrally acting agent	Safe in hypertensive patients	Orthostatic hypotension
SSRI drugs			
Zoloft 50 mg qd	Serotonin reuptake inhibition	Once daily dosing; generally safe	Plethora of side effects
Prozac 20 mg qd			
Paxil 20 mg qd			
Yohimbine 8 mg bid–tid	Uncertain	May be useful in refractory cases—not a firstline therapy	Anxiety; nervousness
Erythropoietin 4,000 IU sq bi-weekly	Uncertain	May be useful in refractory cases—not a firstline agent	Requires injections; inconvenient; expensive
Disopyramide 100–200 mg bid of sustained release	Negative inotropic; anticholinergic properties	Can be effective in refractory cases—not a first line agent	Requires drug level monitoring; side effects can be serious

and/or volume expansion may be inadvisable for other reasons such as supine hypertension.

Nonpharmacologic therapy can include elastic support hose. These hose should best be ordered to be thigh high with 30–40 mm Hg counter pressure. However, this form of therapy has several drawbacks including aesthetic issues and issues of comfort.

Finally, in some patients, orthostatic training, provided by standing upright against a wall twice daily for varying amounts of time, may be useful.

Pharmacologic Therapy

A summary of various pharmacologic options is listed in Table 1. While choosing a particular therapy, attention must be paid to several factors. The physician must consider the patient's age, other illnesses and medications, side effects and compliance issues.

Cardiac Pacing

The role of cardiac pacing to treat neurocardiogenic syncope remains controversial. It is reserved for patients in whom episodes include a substantial bradycardic component. In general, these patients are also refractory to pharmacologic therapy. However, some patients may prefer pacing to medical therapy.

When pacing is utilized, a dual-chamber pacer with hysteresis or rate-drop function should be utilized. In addition, patients should be advised that pacing alone may be ineffective and that they may require adjunctive medical treatment.

Summary

In patients with neurocardiogenic syncope, decisions on when to treat and how to treat are based more on individual issues than randomized trial data. Although guidelines do exist, a premium remains on thoughtful clinical judgment tailored to the patient's circumstance.

Suggested Reading

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Address correspondence and reprint requests to Daniel J. Kosinski, MD, Cardiology, Room 1192, The Medical College of Ohio, 3000 Arlington Avenue, Toledo, OH 43614.