

Carotid sinus hypersensitivity in an elderly patient with recurrent syncope and two different types of supraventricular tachycardias

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Citation

S kanjwal, M Kanjwal, Y Kanjwal. *Carotid sinus hypersensitivity in an elderly patient with recurrent syncope and two different types of supraventricular tachycardias*. The Internet Journal of Cardiovascular Research. 2006 Volume 4 Number 2.

Abstract

Carotid sinus hypersensitivity syndrome also known as Bishop's syndrome is an uncommon cause of syncope. Carotid sinus hypersensitivity may be an important cause of syncope even in patients thought to have other causes of syncope. We report a patient who presented with syncope and had supraventricular tachycardia documented on Holter monitor. Patient subsequently underwent diagnostic EP study and was inducible for two different types of tachycardias that obviously were not the cause of syncope. He finally had long hemodynamically significant pauses on carotid sinus massage.

CASE HISTORY

A 77-year-old white male who had witnessed syncope at home after he had carried groceries and while turning his head. No premonitory symptoms were observed and no seizures and bowel or bladder disturbances were noted. He had extensive workup that included EEG (Electroencephalography), CT (computed Tomography) scan of head, echocardiography and cardiac stress test. All of these diagnostic studies performed were found to be unremarkable. He was discharged and given a holter monitor that revealed long "RP" tachycardia suggestive of atrial tachycardia. Considering that this may have caused his syncope he was taken for an EP study. He was inducible for atrial tachycardia (Fig 1) that was septal in origin and also had typical AV node reentry (Fig 2). Both of these arrhythmias were successfully ablated using non-contact mapping system however during neither of these tachycardias patient was hemodynamically unstable. Patient remained symptomatic after ablation therapy and finally had carotid sinus massage done. He had hemodynamically significant 4.6 second long pause (fig 3), thereby accounting for his syncope after head turning. Patient received a dual chamber pacer and has been asymptomatic.

Figure 1

Figure 1: Patient having inducible long RP tachycardia



Figure 2

Figure 2: Patient having inducible short RP tachycardia

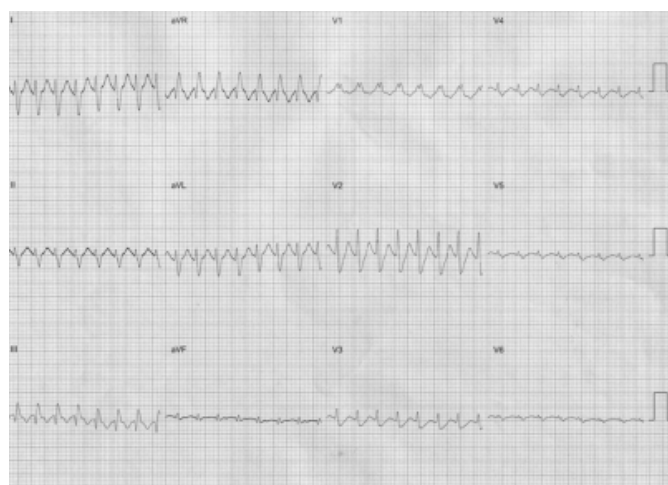
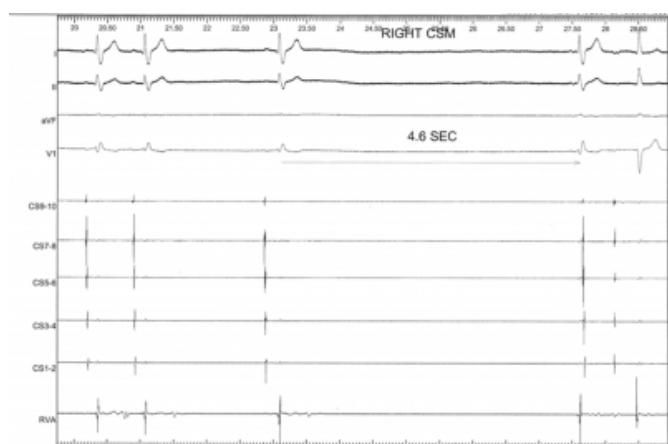


Figure 3

Figure 3: A 4.6 sec pause seen on right sided Carotid sinus massage



DISCUSSION

Carotid sinus hypersensitivity is the most commonly reported cause of falls and syncope in older persons¹. It is characterized by prolonged heart rate slowing or a profound drop in systolic blood pressure (SBP) in response to carotid sinus massage². Cardioinhibitory CSH is defined as asystole of 3 seconds or more with a drop in SBP of less than 50 mm Hg. Vasodepressor CSH is defined as a drop of 50 mm Hg or more in SBP and mixed CSH was a combination of cardioinhibitory CSH and vasodepressor CSH³.

The prevalence of CSH in different populations range from 0% to 62%.^{4,5,6,7,8,9,10,11}. The varied responses are due to differences in methods of recruitment of participants, in settings, in comorbidity, in duration of carotid sinus massage (CSM), and in definitions of abnormal responses. The

incidence appears to increase with age, and has been reported to be as high as 40 percent among patients >80 years of age with unexplained syncope, however, false positive diagnoses also appear to be common in the elderly. False positive results with carotid sinus massage may be relatively common in elderly patients. This was illustrated in a study that evaluated the response to CSM in an unselected sample of 272 elderly patients (mean age 71) from a community practice. CSM was performed in both the supine and upright positions according to recommended protocols. Carotid sinus hypersensitivity was present in 39 percent overall and in 35 percent of 80 individuals with no prior history of falls, syncope, or dizziness. Thus, alternative causes should be explored before attributing syncope to carotid sinus hypersensitivity in elderly patients¹².

Simon R et al¹³ in his study of one thousand individuals older than 65 years who were randomly sampled from a single general practice register. 272 participants underwent supine and upright carotid sinus massage with continuous heart rate and phasic blood pressure monitoring. They found Carotid sinus hypersensitivity was present in 107 individuals (39%); 24% had asystole of 3 seconds or greater during carotid sinus massage; and 16% had symptoms (including syncope) with carotid sinus hypersensitivity. Age (odds ratio, 1.05; 95% confidence interval, 1.00-1.09) and male sex (odds ratio, 1.71; 95% confidence intervals, 1.04-2.82) were the strong predictors of carotid sinus hypersensitivity. In 80 previously asymptomatic individuals, carotid sinus hypersensitivity was present in 28 (35%) and accompanied by symptoms in 10. The 95th percentile for carotid sinus massage response was 7.3 seconds' asystole and a 77-mm Hg drop in systolic blood pressure. Thus the finding of a hypersensitive response should not necessarily preclude further investigation for other causes of syncope.

In another study positive yield of carotid sinus massage in symptomatic patients was 17.6% with the yield in men being twice that in women. None of the asymptomatic control subjects demonstrated a positive response. The yields in unexplained syncope and unexplained falls patients were around 4-fold and 3-fold higher respectively than in unexplained dizziness patients. The positive yield in women with unexplained dizziness (without a definite history of syncope and falls) is zero. Hence carotid sinus massage in older adults should particularly be targeted at patients with unexplained syncope and unexplained falls⁵.

Our case demonstrates the importance of doing a routine

carotid sinus massage in a situation when the cause of syncope is not clear. Even though our patient had two different types of tachyarrhythmias but he was not symptomatic during any of these, making them unlikely to be cause of his symptoms.

CONCLUSION

Syncope in elderly is many times associated with underlying cardiovascular cause and should be diligently sought and ruled out. Supraventricular tachycardias rarely can cause syncope. This case illustrates the importance of doing carotid sinus massage when the cause for syncope is not known. In elderly patients however, carotid sinus hypersensitivity should not preclude other causes of syncope.

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