Loperamide Induced Brugada Syndrome

Introduction

A young man with a history of narcotic abuse follows a recipe for a concoction of loperamide that he found on the internet to obtain a less expensive “high” and has a syncopal episode at work. Could loperamide have caused a drug-induced Brugada syndrome?

Background

A 25 year old male with no personal or family history of heart disease, including no cardiac dysrhythmia or sudden death, presents after a syncopal episode at work. Patient was working a grill when his coworkers stated he “passed out” without any warning symptoms. Patient did not lose any bowel or bladder function nor did he exhibit any convulsions. Patient seemed to “come back quickly” suggesting lack of a post-ictal state. Symptons exhibited prior to episode were heat intolerance and lightheadedness. Patient endorsed these symptoms as well as dizziness, muscle fatigue, palpitations and shortness of breath with extreme exertion such as heavy lifting for several months.

During questioning, the patient denied any medical problems other than significant narcotic abuse and dependency. Patient had quit approximately seven months prior to admission. In an attempt to control his withdrawal symptoms, patient had turned to the internet and found a loperamide and “acid blocker” blend that he had been using with good results. Prior to this syncopal episode, patient had increased his dosage of loperamide a few days prior because he had been becoming tolerant to the previous dose.

Electrocardiogram

Course

Initial ECG revealed Brugada pattern. Cardiology and electrophysiology were consulted and at first his syncope was thought to be vasovagal likely related to dehydration from loperamide. Further testing was done including an echocardiogram and stress test. Echocardiogram revealed a normal ejection fraction of 55-60% and trace mitral regurgitation. Stress test revealed an exaggeration of Brugada pattern on ECG and patient complained of fatigue, however developed no shortness of breath, chest pain, or syncope. The remainder of his hospital course was uneventful and he was discharged for follow up with electrophysiologist.

Patient adamantly refused any further invasive testing specifically electrophysiological (EP) studies. On follow up the patient's ECG did once again exhibit the Brugada pattern and patient was urged to continue with EP testing and potential AICD placement. He chose to seek a second opinion and unfortunately was lost to follow up.

Discussion

Although typically classified as an autosomal dominant genetic disorder, there have been a few reported cases of drug – induced Brugada Syndrome. Most notably, cocaine can transiently induce the ECG pattern of Brugada Syndrome because of its actions as a class I antiarrhythmic causing sodium channel blockade. Other drugs that also seem to block the cardiac sodium channels are antihistamines, neuroleptic drugs, and cyclic antidepressants such as lithium or amitriptyline. These have been reported to cause a transient Brugada pattern. Of course, antiarrhythmic drugs such as flecaïnide or procainamide can induce Brugada syndrome on ECG. Loperamide, which is an opioid derivative, may have an unknown mechanism to induce Brugada syndrome as shown in other cases involving narcotics.

Conclusion

Although rare, there have been reported cases of antihistamine, cocaine, and psychotropic drug induced Brugada Syndrome. Loperamide is another agent that could induce this syndrome. At present, there are no reported case studies that involve loperamide and Brugada Syndrome, however, because of the patients lack of family or personal history of cardiac problems we believe this may be the first case of loperamide induced Brugada Syndrome.

References


