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CASE REPORT

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A case of probable Amiodarone-induced pancreatitis in the treatment of atrial fibrillation: a literature review and case report

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ABSTRACT

Amiodarone is an effective medication used in the treatment of several different arrhythmias. Its most well-known adverse effects include pulmonary fibrosis, thyroid dysfunction, and hepatotoxicity. A less common side effect is acute pancreatitis. A 67-year-old male being treated for atrial fibrillation in rapid ventricular response with Amiodarone developed acute epigastric abdominal pain 24 hours after initiation of therapy. He was diagnosed as having acute pancreatitis based on characteristic findings seen on an abdominal CT scan. Commonly encountered etiologies of pancreatitis were ruled out through a combination of the history, laboratory values, and imaging results. Based on the temporal association of the acute presentation and initiation of Amiodarone therapy, in conjunction with a lack of support for any other etiology, the diagnosis of Amiodarone-induced pancreatitis was made. Within 7 days following the cessation of Amiodarone therapy, the patient's symptoms had completely resolved. Amiodarone-induced pancreatitis is an often overlooked medication association and is one that has been infrequently reported throughout the literature. Given the substantial morbidity and mortality associated with acute pancreatitis, and the ease of treatment (withdrawing Amiodarone), this is a critical side effect that should be recognized in the appropriate clinical setting.

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Amiodarone; amiodarone side effects; drug induced pancreatitis; drug reaction; atrial fibrillation; atrial flutter; arrhythmia

1. Introduction

Amiodarone is a Class-III anti-arrhythmic medication that is used in the acute and chronic treatment of various arrhythmias, including ventricular fibrillation, ventricular tachycardia, and atrial fibrillation. Despite being effective as an antiarrhythmic, the side effect profile seen with Amiodarone is extensive and potentially fatal, which has limited its application in medicine. The most common and well-studied side effects of Amiodarone include pulmonary fibrosis, hypo- or hyperthyroidism, hepatotoxicity, and peripheral neuropathy. Pancreatitis is a very rare and potentially fatal side effect associated with Amiodarone, which has been infrequently reported in literature [1–3]. We report a case of a patient who developed acute pancreatitis following the initiation of Amiodarone therapy.

2. Case presentation

A 67-year-old male presented to the hospital to undergo radiofrequency ablation for symptomatic atrial flutter. He tolerated the procedure well and was transferred to the medical floor for bed rest and standard overnight observation. The following day, the patient developed symptomatic atrial fibrillation with rapid ventricular response and was given one dose of intravenous Metoprolol as well as oral Diltiazem for attempted rate control. This did not adequately control his heart rate, and the patient was subsequently transferred to an intensive care unit for initiation of an Esmolol drip. During the initial hours of the infusion, the patient became extremely hypotensive, diaphoretic, and displayed evidence of hypoperfusion. The patient was then given a bolus of Amiodarone, started on phenylephrine, and was eventually electrically cardioverted once his blood pressure stabilized. He was then continued on an Amiodarone infusion overnight and maintained normal sinus rhythm per telemetry.

The following day, the patient began to develop severe and sharp epigastric abdominal pain, without signs or symptoms concerning for an acute abdomen. A prompt evaluation with lab work, CT imaging, and a gastroenterology evaluation was initiated. Preliminary lab work was largely unremarkable, demonstrating an amylase of 18, Lipase of 3, Lactate of 1.0, AST of 19, and ALT of 15. CT imaging of the abdomen demonstrated inflammation of the pancreas that was consistent with acute pancreatitis (Figure 1). Upon complete evaluation by a gastroenterologist, the diagnosis of acute pancreatitis was made based upon the classic presentation, along with CT

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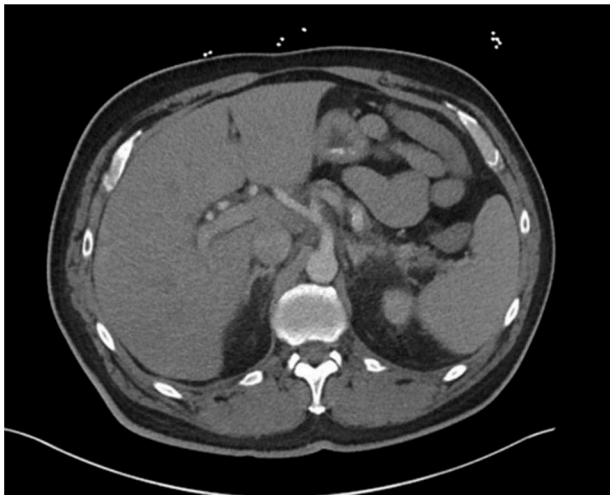

Figure 1. CT abdomen with contrast showing inflammation of the body and tail of the pancreas. Findings consistent with acute pancreatitis.

radiographic evidence, despite normal amylase and lipase. Given the timing of this acute presentation in relation to Amiodarone, the etiology was speculated to be Amiodarone induced. The Amiodarone drip was immediately stopped, and management for acute pancreatitis was continued, which included judicious intravenous fluids and pain control. The patent had an initial and dramatic improvement in his pain, which had completely resolved by 1 week following cessation of Amiodarone therapy.

3. Discussion

The diagnosis of acute pancreatitis can be made if at least two of the following criteria are satisfied: acute onset of severe epigastric pain that often radiates to the back, elevations in serum amylase or lipase to three times the upper limit of normal, and characteristic findings of inflammation on imaging [4]. The significance of this is that normal enzyme levels do not exclude the diagnosis, and that when clinical suspicion is high, and the other two criteria have been met, the diagnosis is still made [5]. For our patient, the diagnosis of acute pancreatitis was made based upon a history and physical exam consistent with the disease and characteristic findings seen on abdominal CT scan, despite never having elevated enzyme levels. Furthermore, our patient did not have a history of previous pancreatitis episodes nor did he have any common risk factors such as alcohol or drug abuse. His history and investigations were also negative for ductal dilation or gallstones seen on CT, recent ERCP, trauma, infection, or laboratory abnormalities suggestive of cholestasis or marked hypertriglyceridemia. Of note, the patient had also been given intravenous Metoprolol, which does have a rare association with acute pancreatitis, theorized to be in part due to profound hypertriglyceridemia [6]. In light of this, Amiodarone was speculated to be the most likely catalyst for the patient's acute presentation due to its known association and initiation only 24 hours prior.

Drug-induced acute pancreatitis has no discernibly different clinical presentation from pancreatitis from other causes. Therefore, the diagnosis is made if two of the diagnostic criteria are satisfied, all other common etiologies are excluded, and there is a temporal relationship with a known associated medication. In the case of Amiodarone, the onset of acute pancreatitis can occur as early as within the first 3 days of treatment, or any time for years after treatment initiation [7]. While the exact mechanism remains unclear, it has been theorized that the process is related to immunosuppression, direct cellular cytotoxicity, pancreatic ductal constriction, or arterial thrombosis [8]. However, regardless of the mechanism or etiology behind the acute process, the treatment for pancreatitis remains the same, with the most important aspect of treatment being withdrawal of the offending agent. Once the inciting therapy has been stopped, symptoms typically resolve within 7–10 days and do not recur without a second drug challenge. This was the case with our patient as his entire acute presentation completely resolved by the seventh day following cessation of Amiodarone.

4. Conclusion

Even though the clinical presentation of Amiodarone-induced pancreatitis is often milder when compared to other etiologies, the disease process still carries with it a significant morbidity and mortality risk. Failure to identify Amiodarone as the culprit will indubitably lead to continuation of the offending agent, subsequent recurrences, and potential worsening of the patient's clinical course. As such, despite being infrequently reported in the literature, pancreatitis is an important side effect and medication association that should be recognized by the Internist and should be investigated thoroughly in the appropriate clinical setting.

Disclosure statement

No potential conflict of interest was reported by the authors.

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