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Case Report

Moxifloxacin Causing Lazy Heart: A Case Report

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Abstract

Bradycardia is defined as heart rate less than 60bpm in adults (Normal heart rate is 60-100bpm in adults). There are many causes of bradycardia including medications which can cause mild to severe depression in heart rate even leading to cardiac arrest and death. Here is the case of an elderly man with no pre-morbid condition who took moxifloxacin for the treatment of acute rhinosinusitis. He developed dizziness and generalized fatigue on second day of antibiotic treatment. His complete blood picture, liver function tests, renal function tests, serum electrolytes including magnesium and potassium were all normal. ECG showed sinus bradycardia. Echocardiography was normal. His moxifloxacin was switched to amoxicillin-clavulanate and his bradycardia reverted back to normal.

Key Words: bradycardia; moxifloxacin; electrocardiography; qt interval

Introduction

In adult individuals, normal heart rate varies between 60 and 100 bpm. Athletes have slightly lower heart rates as compared to non-athletes. Bradycardia is defined as heart rate less than 60bpm in adults. There are many causes of bradycardia which includes hypokalemia, hypomagnesemia, female sex, older age group, pre-existing heart diseases and medications which can cause mild to severe bradycardia and torsades de pointes (TdP) eventually can resulting in ventricular fibrillation, cardiac arrest and death. Symptoms of bradycardia include dizziness, fatigue, lightheadedness, breathlessness and chest pain. In most of the cases previously documented, most patients had torsades de pointes as a complication of moxifloxacin but in our case, patient developed sinus bradycardia. But to keep it in strong consideration, bradycardia can ultimately leads to torsades de pointes, ventricular fibrillation and cardiac arrest.

Case Presentation:

A 69-years old elderly patient with no known pre-morbids presented in hospital OPD with symptoms of acute rhinosinusitis. His ENT specialist advised him moxifloxacin for 7 days. On second day of treatment, he developed dizziness and generalized fatigue. He visited emergency department for symptoms. His blood pressure was 100/60mmHg, pulse was 48bpm, oxygen saturation 98% and was afebrile.

Electrocardiography was done which showed sinus bradycardia with no missed beats or any arrhythmia. His baseline investigations like complete blood picture, liver function tests, renal function tests, serum electrolytes including potassium and magnesium, and thyroid function tests all were normal. Echocardiography was done to rule out any underlying cardiac disease which also came out to be normal.

He was not taking any other medications. So, his moxifloxacin was withheld and switched to amoxicillin-clavulanate for the treatment of acute rhinosinusitis. His bradycardia improved after one day and returned back to 68bpm with improvement of symptoms.

Discussion:

Antibiotics are necessary for Acute bacterial Rhinosinusitis. There are different groups of antibiotic groups indicated for acute rhinosinusitis. Common groups include respiratory fluoroquinolones, amoxicillin-clavulanate or a third-generation cephalosporin plus clindamycin. In group of fluoroquinolones, researches have showed that Moxifloxacin is superior to Levofloxacin in terms of shorter duration of treatment and better outcomes along with low recurrence rates. [1]

Moxifloxacin can cause lethal outcomes as it is a stronger antibiotic with longer half-life but can cause prolonged QTc interval, bradycardia, and torsades de pointes (TdP) which is a life threatening condition and leads to ventricular arrhythmias and death. [2] Bradycardia can cause decreased cardiac output and in turn causing hypotension and hypoperfusion which can lead to Myocardial Infarction and sudden Cardiac Arrest especially in people of an older age group and with people of already diagnosed cardiac problems. [3]

Clinicians should avoid prescribing Moxifloxacin in previously diagnosed cardiac patients and in elderly people. Younger patients must be informed in detail about symptoms of bradycardia such as dizziness, fatigue, dyspnea, or

chest pain with emergency follow up if these occur; as some people are genetically susceptible to QTc prolongation. [4] They should also take proper family history of sudden cardiac arrest in younger people before prescribing moxifloxacin. An electrocardiogram can be done in hospital or in OPD setting to look for silent QTc prolongation before prescribing moxifloxacin. It is better to give moxifloxacin in hospital setting where there is proper monitoring of cardiac status is available and emergency management can be done.

There are Effective alternatives of moxifloxacin. Treating physicians should see the pros and cons of prescribing fluoroquinolones in the treatment of acute bacterial rhinosinusitis. They should choose as effective antibiotic as moxifloxacin with less side effects. Clinicians can prescribe Amoxicillin/Clavulanate as an effective and equivalent alternative to Moxifloxacin with better safety profile. [5]

Conclusion:

Many medications cause rare complications. We should keep in mind these rare complications as a cause of patient's newly developed symptoms and to avoid any further life-threatening events.

Conflict of Interest

No conflict of interest with any institution / organization.

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