QTc Prolongation and Ventricular Trigemini with Asenapine: A Case Report

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SUMMARY

Asenapine is one of the newer atypical antipsychotics on the market. It is a sublingually administered drug that is indicated for the treatment of both schizophrenia and bipolar disorder, and is considered to be safe and well tolerated. Herein, we report a 71-year-old female with a history of bipolar disorder who had ventricular trigemini and experienced a large increase in her QTc interval after starting treatment with asenapine. These changes ceased following withdrawal of asenapine. In this case report, we discuss the importance of cardiac monitoring when switching antipsychotics, even to those that are considered to have low cardiac risk.

Key Words: Asenapine, QTc prolongation, ventricular trigemini

INTRODUCTION

Currently, atypical antipsychotics are the gold standard of treatment for various psychiatric indications. Their use ranges from rapid tranquilization to maintenance treatment (Koh et al. 2010, Hui et al. 2013), and they are perceived to have fewer side effects and may be safer in overdose (Gill et al. 2010). Asenapine is one of the newer atypical antipsychotics on the market; its use is indicated for the treatment of both schizophrenia and bipolar disorder. Asenapine has a good tolerability profile and a low propensity for metabolic and extrapyramidal side effects. Further, it has been reported that Asenapine does not have a clinically relevant effect on the QT interval (only a 3 – 5 ms increase as compared to placebo, Saphris product Monograph, 2013). Herein, we report a female bipolar patient that experienced a large increase in her QTc interval as well as ventricular trigemini after beginning treatment with asenapine. A review of the literature revealed only 1 previous report of prolonged QTc with asenapine, but the first with the presence of ventricular trigemini.

CASE

A 71-year-old female with a long history of bipolar disorder was admitted in a manic state. She was previously on sodium valproate and olanzapine, but had defaulted on her medications for the last 5 months. She had no significant comorbid medical illnesses. Upon admission, she was given olanzapine (10mg bid). However, a course of electroconvulsive therapy (ECT) was planned a week later because she did not show any improvement, and because she had a history of good response to ECT in the past. All blood investigations, including electrolytes, were normal, as was her electrocardiogram (ECG, QTc of 383ms, Figure 1). After 2 cycles of ECT, her therapy...
was switched from olanzapine to asenapine (5mg bid), as she revealed that she had previously stopped taking olanzapine due to weight gain. However, just prior to her 3rd ECT, she was noted to have developed ventricular trigemini with a QTc of 459ms (Figure 2). Therefore, her ECT was withheld pending further investigation. Repeat blood investigations, including electrolytes and cardiac enzymes, were normal. Twelve hours later, a repeat ECG still showed the presence of ventricular trigemini and prolonged QTc. The patient was taken off asenapine, as it was suspected to be the offending agent. By the next day, the ventricular trigemini had ceased, and the patient’s QTc had shortened to 428ms. ECT was then recommenced, and she was discharged well 19 days after admission with sodium valproate (600mg bid).

**DISCUSSION**

Herein, we presented a 71-year-old female who experienced an increase in her QTc interval as well as ventricular trigemini after beginning treatment with asenapine. The increase in the patient’s QTc and the appearance of ventricular trigemini was deemed to be caused by asenapine, as they appeared after the introduction of asenapine, and resolved after it was stopped.

Furthermore, there were no other known causes; she did not have any electrolyte imbalance or evidence of ischemic cardiac disease. To our knowledge, this is only the second reported case of prolonged QTc with asenapine, but the first with the presence of ventricular trigemini. The QTc duration of the patient presented herein increased 76ms after commencement of asenapine. In standard 25mm/sec ECG tracings, each 1 mm (small) horizontal box corresponds to 40 ms, with larger boxes representing 200 ms. In Figure 3, the QT interval (0.380sec) was measured from the beginning of the QRS complex to the end of the T wave. The RR interval (0.720sec) was measured from the beginning of the QRS complex to the end of the T wave. The RR interval (0.720sec) was measured between the peaks of successive R waves. Using the above formula, this patient’s QTc after commencement of asenapine was 0.380 + √0.720 = 0.459sec.

Unlike prolonged QT, ventricular trigemini is a type of extrasystole that is usually considered to be benign. However, recent research has suggested the possible development of non-ischemic dilated cardiomyopathy with prolonged ventricular extrasystoles, even in those without known cardiac disease (Wilber 2009). We propose that cardiac monitoring always be performed when starting, switching, or increasing the dose of antipsychotics, especially in high risk populations, such as the elderly. The case presented herein has illustrated that significant cardiac changes can occur when starting or switching antipsychotics, even with those that are considered as having low cardiac risk.
REFERENCES

Gill JS, Pillai SK, Koh OH et al (2010) Non-fatal paliperidone overdose: a case report. Turk Psikiyatri Derg 21:331-4.

Hui KO, Sulaiman AH, Gill JS et al (2013) A 3-Week, Open Label Study to Evaluate the Efficacy and Safety of Extended Release Quetiapine Fumarate in the Treatment of Agitation in Patients with Schizophrenia. Bulletin of Clinical Psychopharmacology 23:14-23.

Koh OH, Singh GJ, Kumar PS et al (2010) Choice of antipsychotics prescribed for first episode psychotic patients in a teaching hospital. Int J Neuropsychopharmacol 13:98.

Kotasek F, Tibrewal P and Dhillon R (2014) QTc prolongation with asenapine. Aust N Z J Psychiatry 48:961.

Saphris Product Monograph (2012) Kirkland, QC, Merck Canada Inc.

Wilber DJ (2009) Ventricular ectopic beats: not so benign. Heart 95: 1209-10.