CASE REPORT

Sinus tachycardia with paliperidone: a case report

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Abstract

Background: With this case we intend to add knowledge to the differences between paliperidone and risperidone namely in causing cardiovascular effects.

Case Report: We report a case of a young adult with a first psychotic event, who presented with sinusal tachycardia after the initiation of treatment with paliperidone. Tachycardia appeared to be dose-related and no other changes were observed in the electrocardiogram.

Conclusions: This case is in accordance with data suggesting that paliperidone presents a good overall tolerability profile compared with risperidone, except for increased rates of tachycardia. Further studies are needed to assess the incidence and clinical implications of tachycardia associated with paliperidone.

Keywords: Tachycardia, Sinus tachycardia, Paliperidone, Antipsychotics effects.
Background

Paliperidone, the active metabolite of risperidone, is a new atypical antipsychotic, that results from risperidone conversion by CYP2D6. In comparison with risperidone, it has the advantage of low extent of enzymatic metabolism [1] and easier dissociation from the D2 receptors [2]. Although it differs from risperidone by only a single hydroxyl group, very recently it was shown that this promotes changes in receptor conformations leading to different regulation of cellular signal transduction cascade [3]. The actual effects of these differences, namely in adverse effects like QT prolongation, sinus tachycardia, ventricular arrhythmias, cardiac arrest, and torsade de pointes are still not known [4].

With this case we intend to clarify the relationship between paliperidone and sinus tachycardia and to add knowledge to the differences between paliperidone and risperidone, namely in causing cardiovascular effects.

Case report

A 19 year-old Caucasian man, was taken to the psychiatric emergency service, by the police, for being several hours without moving, with a bag on his side, and in active mutism. In the emergence room, initially he continued in mutism and refused oral medication. After, he mentioned that he was being pursued, a virus had contaminated him and his friends, and had changed his identity. Analytic study with blood cell count, renal, and hepatic function was normal, drugs testing was negative, and a computerized tomography scan showed no changes. In face of the psychotic symptoms he was admitted compulsively in a psychiatric ward. He had no personal neither familial history of psychiatric disease. Additionally, he also had no medical diseases registered, namely cardiovascular disease or family history of QT prolongation.

He initiated antipsychotic monotherapy with oral paliperidone extended release (ER) 6mg in the 3rd day of his hospitalization, progressively augmented to 15mg. In the 6th day he presented tachycardia of 140bpm. An electrocardiogram (ECG) was done, he was observed by an internist and it was concluded that he presented sinus tachycardia (Figure 1), probably related to paliperidone. We opted to maintain therapy and he repeated ECG on 12th day and sinus tachycardia was still present. QT interval was always within the normal range.

During his treatment, he told his brother that he was a regular cannabis user since six months ago and occasionally he had tried smart drugs (which he didn’t know the name). One week before the hospitalization he had stopped drug use. The family mentioned that during the last few months he started to be more distracted in the studies, he failed for the first time his faculty exams and he was caring less about his appearance.

As he was having a slow but good clinical response, with reduction of the paranoid delusion, we started to reduce paliperidone in the 27th day. He was discharged from the hospital after 34 days, medicated with 6mg of paliperidone. In the last days of hospitalization he presented cardiac frequencies between 100-107bpm. He was maintained on supervision in psychiatric consultation and 2 months after discharge he was asymptomatic, medicated with Paliperidone 3mg. In the last ECG performed, there was a sinus rhythm with normal cardiac frequency with 77 bpm (Figure 1).

Discussion

Our study highlights the relationship of tachycardia and paliperidone, that in this case is dose-related and with minor clinical implications.

Sinus tachycardia was found as an adverse effect of paliperidone occurring between 3 a 18% of patients [5-8] and significantly greater risk of tachycardia was found with paliperidone compared with placebo [6, 9, 10]. However, its clinical relevance is still not clear, since most paliperidone adverse effects are mild or moderate in severity [7], the incidence of tachycardia related with paliperidone shows a small difference with placebo [11], and the incidence of serious treatment-emergent adverse effects, which include tachycardia, is low and comparable to placebo [6].

In our case, tachycardia associated with paliperidone appears to be dose-related and no other changes in the ECG were observed including in the QT interval. This can clarify the relationship between tachycardia and paliperidone dose. In certain studies, the treatment-emergent adverse effects, which included tachycardia, didn’t appear to be dose-related [6] and there was no apparent dose-response relationship for the severity of adverse effects observed [7]. However, other studies show a dose-response relationship and while for paliperidone ER 6mg the incidence of treatment-emergent adverse effects was comparable with placebo, it was slightly greater with paliperidone ER 12mg [11].

In the case presented, sinus tachycardia with paliperidone did not jeopardized the treatment of the patient, which is in accordance with data available till now that suggest that paliperidone presents good overall tolerability in comparison with risperidone, except for increased tachycardia and sinus tachycardia rates [12].

There are several limitations to this study that should be considered: we did not know which smart drugs the patient had consumed and the heart rate was not controlled to potential confounders.

In the future, randomized clinical trials are needed to quantify the incidence of tachycardia and its clinical relevance, as well as the differences with risperidone.
Competing interests

The authors declare no conflict on interest.

References


Figure 1. Relationship between oral Paliperidone extended release dose (mg/day) and Heart Rate (bpm).