

Effects of aripiprazole and risperidone on ventricular repolarization in children and adolescents

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Atypical antipsychotics (AP) are increasingly being used in children and adolescents for the treatment of psychiatric disorders. Atypical AP may cause QT prolongation on the electrocardiogram (ECG), which predisposes patients to an increased risk of developing threatening ventricular arrhythmias. Although this phenomenon has been exhaustively reported in adults, few studies investigated the safety of these drugs in pediatric patients. We performed an open-label, prospective study to assess the arrhythmic risk of aripiprazole and risperidone in pediatrics. A total of 60 patients (55M/5F, mean age $10,2 \pm 2,6$ years, range 4–15 years), receiving a new prescription of aripiprazole or risperidone in monotherapy underwent a standard ECG before and after two months from the beginning of antipsychotic treatment. Basal and post-treatment ECG parameters, including mean QT (QTc) and QT dispersion (QTd) interval duration, were compared within treatment groups. Twenty-nine patients were treated with aripiprazole (mean dosage $7.4 \pm 3,1$ mg/day) and 31 with risperidone (mean dosage $1,5 \pm 1$ mg/day). Although no patients exhibited pathological values of QTc or QTd, treatment with risperidone was associated with a significant increase of both QTc and QTd values ($407,4 \pm 11,9$ ms vs $412,4 \pm 10,3$ ms, $p < 0.05$; and $40,0 \pm 4,4$ ms vs $44,7 \pm 5,5$ ms, $p < 0.01$, respectively). Conversely, treatment with aripiprazole was associated with a statistically significant increase of QTd, ($40,6 \pm 6,5$ ms vs $46,3 \pm 7,2$ ms, $p < 0.01$) in presence of an unmodified QTc. Moreover in patients treated with aripiprazole a significant decrease in heart rate was observed after treatment ($90,0 \pm 21,2$ bpm vs $79,8 \pm 19,3$ bpm; $p < 0.01$). These findings suggest the importance to execute an ECG in pediatric patients undergoing AP therapy. Although no subject exhibited pathological values of QTc or QTd, both ECG parameters should be evaluated in order to warrant a reliable assessment of drug-induced QT prolongation.