

The effect of risperidone and electroconvulsive therapy on corrected QT interval in electrocardiogram of psychiatric patients

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Abstract

BACKGROUND: Some types of antidepressants and antipsychotic medications have cardiovascular side effects that can be life-threatening. Electroconvulsive therapy (ECT) is capable of generating physiological stress and may lead to increased QT interval followed by arrhythmias. Risperidone can also increase the risk of arrhythmia by increasing the corrected QT (QTc) interval. Since many patients require co-administration of risperidone and ECT, this study aimed to investigate the concurrent effect of ECT and risperidone administration on the QTc interval.

METHODS: For this cross-sectional study, 60 patients (18-65 years) admitted in 22 Bahman Psychiatric Hospital (Qazvin, Iran) that were candidate for treatment with risperidone, ECT, or both methods were concurrently divided into three groups. The groups included patients treated with ECT, risperidone, and combination treatment (risperidone and ECT). At the beginning of the study, electrocardiogram (ECG) was obtained for all patients and QT was performed manually, and finally, QTc interval was measured two times for each group. Required information was collected through medical records. Then, inferential statistics, analysis of variance (ANOVA), was used to determine differences between different variables.

RESULTS: A significant increase in heart rate (HR) in the third group compared to first and second groups was observed. None of the treatments had a significant effect on QTc interval, but the QTc interval increased slightly in groups treated with the ECT alone and particularly, the ECT plus risperidone in comparison to the baseline values.

CONCLUSION: Our study showed that risperidone, ECT, and their concomitant combination did not affect the QTc interval. Therefore, risperidone and ECT are safe and their combination can also be a good option for refractory patients undergoing ECG monitoring and cardiopulmonary devices.

Keywords: Antipsychotic; Arrhythmia; Electroconvulsive Therapy; QTc Interval; Risperidone