

Prevalence of Arrhythmias in Gender Diverse Adults on Hormone Therapy and The Effect of Hormone Therapy in Gender Diverse Adults on QTc

R Wamboldt, A Waddington, H Geddes, A Baranchuk

Background

An increasing number of gender diverse individuals are seeking medical services to help in the transition to their gender identity. Gender diverse individuals currently represent 0.6% of American adults. A review was conducted by *Wamboldt, et al.* illustrating how the reduction of endogenous testosterone might increase the risk of arrhythmias in trans women. Similarly estrogenic treatments could also increase arrhythmogenicity. QTc prolongation has been demonstrated in states of low testosterone as well as exogenous estrogen use. Studies in cis men have also shown shortening of the QTc interval when testosterone is administered.

The purpose of this study is to determine the prevalence of arrhythmias in gender diverse individuals on hormone therapy and to determine whether the administration of hormone therapy to gender diverse individuals alters their QTc interval towards that of their gender identity.

Methods

This is a prospective observational study conducted in the Kingston Transgender Clinic. The study population includes gender diverse adults between the ages of 18-60, who have been on gender affirming therapy for at least 3 months. Consenting participants undergo a baseline ECG which will be used to measure their QTc interval. They are then provided with a KardiaMobile Device which measures ECGs remotely on their smart devices. They will be asked to complete 3 readings per day for a period of 4 weeks as well as when they are symptomatic. Participants with ECG findings of arrhythmia will be referred to the Arrhythmia Clinic where a 48-hour Holter Monitor will be completed.

Results

This study will help determine the prevalence of cardiac arrhythmia in gender diverse adults taking HT and whether this arrhythmia risk is associated with a particular hormone profile. In addition, the results of this study will help to determine if the QTc interval of gender diverse adults on HT significantly changes towards that of their gender identity and whether the addition of other QTc prolonging medications make this more likely.

Discussion

Current guidelines pertaining to transgender HT do not recommend baseline assessment or ongoing monitoring for cardiovascular disease with a 12-lead ECG. In addition to the potential risk of arrhythmia associated with the HT, many individuals in this population also benefit from psychiatric medications which also cause disturbances in the cardiac electrophysiology. In combination, this could be dangerous. Our study will help to determine whether cardiac arrhythmias are prevalent in this population and whether certain individuals would benefit from periodic ECG monitoring.