Evaluation of the QTc interval-prolonging effects of antipsychotic medications in pediatric patients treated for intensive care unit (ICU) delirium

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Background

Delirium in Pediatric ICU Patients
• Delirium: acute brain dysfunction with disturbance of consciousness and acute cognition changes
• Delirium during critical illness in pediatric patients has been associated with increased mortality and morbidity, including post traumatic stress disorder (PTSD) and long term cognitive impairment (LTCI)1,2,3
• In October 2014, the Duke Children’s pediatric intensive care unit (PICU) and pediatric cardiac intensive care unit (PCICU) implemented a screening and treatment protocol for ICU delirium using the Cornell Assessment of Pediatric Delirium tool (CAPD)4
• Through utilization of this screening tool and increased recognition of pediatric delirium, use of typical and atypical antipsychotics has increased in the PICU and PCICU at Duke Children’s Hospital
• These medications are associated with QTc interval prolongation when used chronically in children for the treatment of other psychiatric disorders5,6
• There is a paucity of literature available to determine whether these medications induce QTc interval prolongation when used in pediatric patients short term for the treatment of ICU delirium

Objectives

Primary Objective
• Determine QTc interval-prolonging effects of antipsychotics administered for pediatric ICU delirium

Secondary Objectives
• Determine incidence of clinically relevant prolonged QTc interval and arrhythmias following antipsychotic administration for pediatric ICU delirium
• What factors influence QTc interval prolongation
• CAPD screening score changes

Methods

IRB approved, retrospective electronic medical record review

Inclusion Criteria
• Admission to the PICU or PCICU from October 1, 2014 through October 31, 2015
• Screened positive for ICU delirium on CAPD tool
• Age < 18 years
• Received ≥ 1 dose of an antipsychotic

Exclusion Criteria
• No baseline or follow up ECG
• Antipsychotic therapy prior to ICU delirium diagnosis

Endpoints

Following antipsychotic administration for ICU delirium:

Primary
• Incidence of clinically relevant QTc interval prolongation

Secondary
• Extent of QTc interval prolongation
• Incidence of prolonged QTc interval among patients with a normal baseline QTc interval
• Incidence of arrhythmias
• Differences in QTc interval-prolonging effects between typical and atypical antipsychotics
• CAPD screening score changes

Data Collection

Patient Demographics and History
• Age
• Gender
• Race
• Congenital heart disease
• Arrhythmia
• QTc interval
• Electrolyte abnormalities

Medication Information
• Antipsychotic used
• Daily and total dose of antipsychotic
• Duration of therapy
• Medication list
• Data collection is currently ongoing

References


Disclosures

Authors have no conflicts of interests regarding personal or financial relationships with commercial entities that may have influenced the content or subject matter of this presentation.