Persistence of Vesicular Monoamine Transport 2 Inhibitor Therapy for Tourette Syndrome and Chronic Tic Disorders

Michael Ong, PharmD[1] | Josh DeClercq, MS[2] | Leena Choi, PhD[2] | Autumn D. Zuckerman, PharmD, BCPS, AAHIVP, CSP[3] | Nisha B. Shah, PharmD[3] | Kayla Johnson, PharmD, BCPS, BCPP[3] | David Isaacs, MD, MPH[4]

[1]Lipscomb University College of Pharmacy, [2]Department of Biostatistics, Vanderbilt University Medical Center, [3]Vanderbilt Specialty Pharmacy, Vanderbilt University Medical Center, [4]Department of Neurology, Vanderbilt University Medical center

VANDERBILT UNIVERSITY MEDICAL CENTER

BACKGROUND

- Tics associated with Tourette's Syndrome are a debilitating condition that may impact an individual's quality of life
- Traditional pharmacological options, including antipsychotics and alpha agonists, have adverse events that may limit their tolerability and efficacy
- Vesicular Monoamine Transport 2 Inhibitors (VMAT2i) have been shown to improve hyperkinetic symptoms of tardive dyskinesia and Huntington's disease chorea[1]
- Efficacy data for VMAT2i use for tics associated with Tourette's Syndrome remains inconclusive[2, 3]

PRIMARY OBJECTIVE

Assess the persistence rate of newly initiated VMAT2i therapy (deutetrabenazine, tetrabenazine, and valbenazine) for chronic tic management at 12 months post-initiation

METHODS

Setting	▪ Academic medical center with an integrated specialty pharmacy
Design	▪ Retrospective cohort study ▪ January 1, 2018 to December 31, 2020
Sample	▪ Inclusion: ○ Age ≥ 18 years old ○ Diagnosis of a chronic tic disorder ○ VMAT2i prescribed during study period ▪ Exclusion: ○ Enrollment in a VMAT2i clinical trial ○ Prior treatment with VMAT2i therapy ○ Patient deceased or lost to follow-up prior to assessment of the study outcomes
Data Source	▪ Electronic health record ▪ Specialty pharmacy management system ▪ Pharmacy claims
Outcomes	▪ Time to discontinuation of VMAT2i therapy, if applicable ▪ Reason for VMAT2i discontinuation, if applicable ▪ Rate of adverse events resulting from VMAT2i regimen
Analysis	▪ Descriptive statistics

RESULTS

Table 1. Patient Demographics (N = 14)

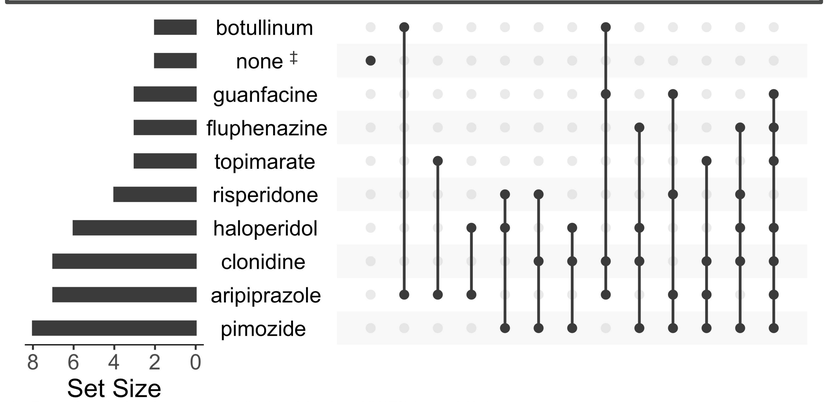
Characteristic	*n (%)*
Median Age, years (IQR)	37 (32 – 44)
Gender: Male	8 (57)
Race: White	14 (100)
Diagnosis and ICD-10 Code	
Tourette's disorder (F95.2)	4 (29)
Unspecified tic disorder (F95.9)	3 (21)
Both F95.2 and F95.9	7 (50)
Comorbid Conditions	
Attention-deficit hyperactivity disorder (ADHD)	2 (14)
Anxiety	7 (50)
Depression	7 (50)
Obsessive-compulsive disorder (OCD)	7 (50)
None of the above	4 (29)

Table 2. Rate of Adverse Events

Adverse Event	*n (%)*
Drowsiness/sedation	6 (21)
Fatigue	4 (14)
Musculoskeletal	4 (14)
Depression	3 (11)
Gastrointestinal	3 (11)
Other psychiatric*	2 (7)
Worsening movements	2 (7)
Anticholinergic+	1 (4)
Hyperprolactinemia	1 (4)
Headache	1 (4)
Sleep disturbances	1 (4)

*: anxiety, perseveration; +: dry mouth and urinary retention

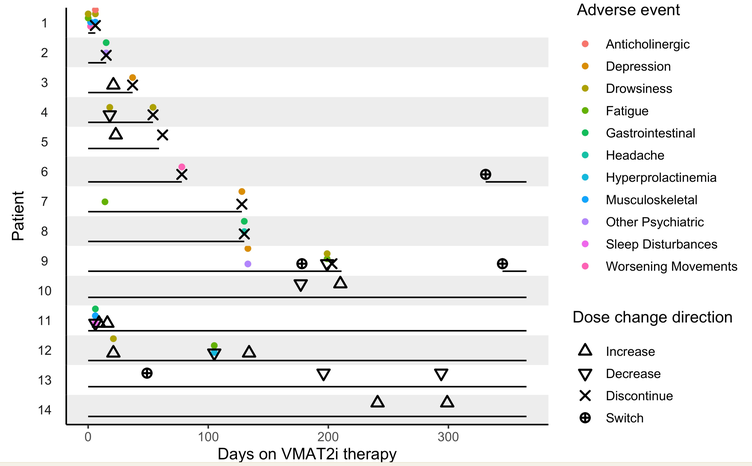
Figure 1. Intersection of Prior Medication Trials



‡ = Two patients had no documented medication trials prior to VMAT2i therapy initiation

- A variety of prior treatment option combinations was seen among patients
- There was a median of 3 prior medication trials (Interquartile Range: 2 - 4) prior to VMAT2i initiation
- Two patients did not receive any recorded prior medications before starting a VMAT2i

Figure 2: VMAT2i Therapy Changes, Discontinuations, and Adverse Events



- 5 (36%) patients were persistent during the full study period
- Reported adverse events rates were lower for patients with higher persistence
- Treatment lapse occurred due to insurance issues for 1 (7%) patient and desire to delay switching for 1 (7%) patient during the study period

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CONCLUSIONS

- Half of patients (n=7, 50%) discontinued VMAT2i therapy prior to the end of the 12-month follow-up period, which was higher than the discontinuation rate of prior VMAT2i studies (ranging from 8% to 55%)
- Patient characteristics indicate a high treatment resistance with a median of 3 prior medications and multiple comorbid conditions for a majority of the study population
- Reported adverse events were the main driver for patient discontinuation with most events being reported within 100 days of VMAT2i initiation
- Further studies exploring persistence rates of VMAT2i therapy in the setting of common comorbid conditions are needed

Authors of this study have the following financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Nisha Shah – Pfizer, AstraZeneca, David Isaacs – Teva Pharmaceuticals .