Kimberly Clinebell, MD  
Clinical Assistant Professor of Psychiatry  
University of Pittsburgh School of Medicine  
UPMC Western Psychiatric Hospital  
Pittsburgh, PA

Kimberly Clinebell, MD received her bachelor’s degree in Biobehavioral Health from the Schreyer Honors College at the Pennsylvania State University and went on to receive her Medical degree from the University at Buffalo School of Medicine and Biomedical Sciences. She completed her psychiatry residency and child and adolescent psychiatry fellowship at UPMC Western Psychiatric Hospital of the University of Pittsburgh School of Medicine.

Dr. Clinebell works as an attending psychiatrist for UPMC Western Psychiatric Hospital at Pathways LTSR, Pine Adolescent Intensive Outpatient Program (IOP), and as a consultation-liaison psychiatrist at Passavant Hospital. Her interests include serious mental illness, women’s mental health, and mentorship.

Ana M. Lupu, Pharm D  
Clinical Pharmacist, Forbes Pharmacy  
UPMC Western Psychiatric Hospital  
Adjunct Instructor of Pharmacy and Therapeutics  
University of Pittsburgh School of Pharmacy

Ana received her Doctorate of Pharmacy from the University of Pittsburgh, and completed her postgraduate training at Duquesne University and the University of Pittsburgh. She currently works as a clinical pharmacist at Forbes Pharmacy of WPIC, providing medication management services for patients with serious mental illness. Her areas of focus are medication education, adherence counseling, diabetes education, and smoking cessation counseling.

Abstract: Deprescribing Anticholinergic Medications in Schizophrenia (Intermediate)

Benztropine and trihexyphenidyl are often prescribed for extrapyramidal symptoms (EPS) due to antipsychotic medications. Guidelines recommend against prophylactic use of anticholinergics for EPS, and to periodically reevaluate their need due to the potential for additive side effects, pill burden, and decreased quality of life. This presentation will describe a quality improvement (QI) project to improve clinical outcomes and quality of life in patients on antipsychotics.

Learning Objectives

By the completion of this session, participants should be able to:
1. Define the pharmacology of anticholinergic medications, including peripheral and central effects
2. Evaluate anticholinergic burden and impact on clinical outcomes
3. Describe how reducing anticholinergic medications for EPS can improve clinical outcomes and quality of life in patients on antipsychotics

References

Deprescribing Anticholinergic Medications in Schizophrenia

Kimberly Clinebell, MD; Ana M. Lupu, PharmD
35th Annual Schizophrenia Conference
November 16, 2018

Disclosures

• Kim: no disclosures
• Ana: no disclosures

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Background

- Antipsychotic medications are the mainstay of pharmacologic treatment for schizophrenia
- All antipsychotic medications have D2 blockade
- Dopamine antagonism in the subcortical brain areas can cause extrapyramidal symptoms (EPS)

EPS

- Dystonia
- Akathisia
- Tremor
- Rigidity/Cogwheeling
- Bradykinesia

Risk Factors for EPS

- History of EPS
- High potency first-generation antipsychotics
- Younger age/Muscular Young Men
- Initiation of therapy
- Dose titration
- Co-morbidities

EPS Management

- **Anticholinergic medications**
  - Antagonize muscarinic anticholinergic receptors both centrally and peripherally
  - IM/oral route
- **Most commonly used**
  - Benztropine
  - Trihexyphenidyl
  - Diphenhydramine


Muscarinic Blockade

- **M1**
  - CNS
  - Tachycardia
- **M2**
  - Tachycardia
- **M3**
  - Urinary retention
  - Constipation
  - Decreased secretions
- **M4**
  - CNS
- **M5**
  - CNS

Bowen J, et al. The Pharmacological Basis of Therapeutics, 12e.

Reducing Anticholinergic Burden

- **Clinical guidelines recommend against prophylactic and long term use of anticholinergic medications for EPS**
- **In many cases they can be withdrawn over time without EPS recurrence**
- **Evidence suggests discontinuing long term usage of anticholinergic agents can lead to improvements in memory, anticholinergic side effects, and quality of life**


Pilot Study

- Done in the Comprehensive Recovery Services (CRS) clinic of Western Psychiatric Institute and Clinic of UPMC
- Diagnoses (DSMIV-TR)
  - Schizophrenia
  - Schizoaffective Disorder
  - Bipolar Disorder
- Patients prescribed benztropine were identified
- Screened for side effects by MD
- Referred to on-site pharmacist
- Interdisciplinary collaboration between psychiatry and clinical pharmacy

Pilot Study

- Pharmacist assessment
  - Initial and follow up assessments conducted over 1-8 months
    - Medication review
    - Overall anticholinergic burden (Anticholinergic Cognitive Burden Scale (ACB))
    - Anticholinergic side effects (Pittsburgh Anticholinergic Symptom Scale (PAS55))
    - Cognitive impairment (Word recall)
    - Quality of life

The Anticholinergic Cognitive Burden Scale (ACB)
The Anticholinergic Cognitive Burden Scale (ACB)
- Widely used and validated scale
- Categorizes potential and severity of medications to cause anticholinergic adverse effects
  - 0 – No anticholinergic activity
  - 1 – Evidence of serum anticholinergic activity in vitro
  - 2 – Little to no clinically relevant effects on cognition
  - 3 – Evidence of clinical anticholinergic effects from literature, manufacturer information or expert opinion
  - 4 – Established and clinically relevant cognitive anticholinergic effects
- Highest blood-brain barrier permeability, association with delirium


The Pittsburgh Anticholinergic Burden Scale (PASS)

The Memory Impairment Screen (MIS)
Pilot Study Results

- 19 patients eligible for a medication change; 29 patients screened
- 68% patients had an anticholinergic medication discontinued
- Overall improvement in anticholinergic side effects
- 52% overall improvement in quality of life
- 40% overall improvement in memory recall
- 20% overall improvement in memory recall

Pilot Study Results Continued

- 29 patients screened
- 19 recommended for medication change
- 13 had medication(s) discontinued
- 6 had dose reductions

Pilot Study Results Continued

- Patients whose anticholinergic burden was reduced experienced improvements in:
  - Side effects
  - Memory
  - Quality of life
- Published in Journal of Clinical Psychiatry
Expansion Project

- New patient cohort identified 2 years later
- Similar methods and data collection as pilot project
  - Patients prescribed benzotropine were identified
  - Screened for side effects by MD
  - Referred to on-site pharmacist for assessment
  - Clinical pharmacist collaborated with patient and providers to initiate and monitor medication changes

Expansion Project Results

- 51 Patients identified for potential reduction
- 76% Patients had a medication changed (60% discontinued)
- 50% Overall improvement in anticholinergic side effects
- 60% Overall improvement in quality of life
- 13% Overall improvement in memory recall

Expansion Project Results: Antipsychotic Prescriptions (N = 51)

- 65% Study participants prescribed one antipsychotic
- 35% Study participants prescribed two antipsychotics
- 80% Study participants prescribed at least one SGA
- 43% Study participants prescribed at least one NMDA
Expansion Project Results: Treatment Factors

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Number of Patients

Take Home Points

• Periodically reassess need for long term anticholinergic medications for EPS
  – Patients on both first and second generation antipsychotics can potentially discontinue benztropine or trihexyphenidyl without reoccurrence of EPS
• Develop patient-centered strategy for discontinuation of medications
  – Consider overall burden
  – Provide education
  – Consider side effects and impact on quality of life
  – Consider referral to clinical pharmacist if available for additional counseling and support during implementation of anticholinergic tapering process

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• Dr. Chengappa
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• WPIC Forbes Pharmacy Pharmacists and Staff
We all wear masks,
And the time comes
When we cannot remove
Them without removing
Some of our own skin.

Andre Berthiaume