Patterns of Concomitant Antipsychotic Use Among Youth in Foster Care: Issues of Quality of Care and Safety

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What to Expect...

- Study 1 - initial investigation of concomitant antipsychotic use among youth
  - Examine prescription utilization and duration
  - Identify population at greatest risk

- Study 2 – more in-depth investigation of concomitant use
  - Identify subgroups with different patterns of antipsychotic treatment
  - Assess the impact of concomitant use on overall exposure
  - Examine medication persistence

- Next steps – examine dosing to better understand

Why is antipsychotic use in children important?

- It is unclear if there is overprescribing
  - Large growth in use from late 1990s-early 2000 (Olfson, 2006)

- Much of the use is off-label
  - Expanded use for attention-deficit/hyperactivity disorder (ADHD) in the absence of typical indications of schizophrenia, autism, or bipolar disorder (Crystal S, et al., 2009)

- Rising concerns about the safety of these agents
  - Associated with metabolic side effects (Correll, 2009)
What key information about antipsychotic use in children is lacking?

- Scientific evidence of the long-term safety and effectiveness
- Cumulative risks on child development
- Community practice patterns
  - Increased antipsychotic polypharmacy among adults (Centorrino et al., 2005; Ganguly et al., 2004; Gilmer et al., 2007)
  - It is not clear if this practice occurs in youth

Study 1

INVESTIGATION OF CONCOMITANT ANTIPSYCHOTIC USE
Study Objectives

- To examine concomitant antipsychotic use among youth enrolled in Medicaid with respect to
  - Prevalence
  - Duration
  - Variation across Medicaid eligibility groups

Methods

- Cross-sectional, retrospective study using data from 2003
- Medicaid eligibility, medical encounters, and pharmacy claims data from 1 Mid-Atlantic state
- Population: 16,969 youth
  - <20 years old
  - Continuously-enrolled in Medicaid
  - At least one mental health visit
  - Received an antipsychotic medication in 2003
Methods

- Independent Variable – Medicaid eligibility group
  - 3 categories
    - Foster care
    - Disabled (SSI)
    - Temporary Assistance to Needy Families (TANF)

- Dependent Variable – 2 measures of concomitant use
  - Dichotomous: any use of >1 antipsychotic for 30 days or more
  - Continuous: number of days of use with >1 antipsychotic

Methods

- Covariates
  - Demographic variables from the eligibility files
  - ADHD, bipolar disorder, depression, anxiety, autism, conduct disorder, oppositional defiant disorder, schizophrenia diagnoses from medical encounter files
  - Antidepressants, mood stabilizers, stimulants medication use from the pharmacy files

- Descriptive analysis of the association between Medicaid eligibility group and the likelihood of concomitant antipsychotic use
Antipsychotic Prevalence

16,969 Youth who Received Antipsychotic Medication

Psychiatric Diagnoses

16,969 Youth who Received Antipsychotic Medication
Concomitant Antipsychotic Use

Use of >1 Antipsychotic Across Medicaid Eligibility Category

- Overall
- Foster Care
- SSI
- TANF

Duration of Concomitant Antipsychotic Use

Distribution by Medicaid Eligibility for Youth with >30 Days of Use

- Foster Care
- SSI
- TANF

- 31-89 days
- 90-179 days
- 180+ days
Summary of Findings from Study 1

- Of youth who receive antipsychotics, > 10% receive these agents concomitantly

- Antipsychotic prevalence is disproportionately higher among youth in foster care and the disabled

- A larger proportion of youth in foster care receive antipsychotics concomitantly and for longer periods of time

Study 2

DISTINGUISHING PATTERNS OF CONCOMITANT ANTIPSYCHOTIC USE
Study Objectives

- To examine concomitant antipsychotic use among cohort of youth in foster care
  - Patterns of use
  - Impact on overall exposure
  - Persistence

Methods

- Retrospective cohort design
- 24-month period of observation
- Cohort: 2,463 youth <20 years old
  - entered foster care on or before 1/1/2010
  - remained in foster care through 12/31/2011
- Received an antipsychotic anytime in the 24 month study period
Methods

- Independent Variable – Use Patterns
  - 4 groups
    - Initiator – no use in the first 6 months
    - Discontinuer – no use in the last 6 months
    - Intermittent – use is on/off
    - Persistent – no >3 continuous months of non-use

- Dependent Variable – 2 measures of concomitant use
  - Continuous: Days of use with antipsychotic
  - Persistence of use:
    - Medication use days/days in the prescription interval

Demographic Characteristics

511 Youth in Foster Care with Antipsychotic Use

Percent of youth

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>African-American</th>
<th>&lt;10 years</th>
<th>10-14 years</th>
<th>15-19 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>
Psychiatric Disorders by Antipsychotic Use Patterns

Percent of youth

Initiator Discontinuer Intermittent Persistent

Disruptive Behavior Internalizing Disorders Mood Disorders

Single and Concomitant Antipsychotic Use

Distribution Across Antipsychotic Use Patterns

Concomitant Single
### Average Days of Antipsychotic Use

<table>
<thead>
<tr>
<th></th>
<th>Initiator (n=100)</th>
<th>Discontinuer* (n=161)</th>
<th>Intermittent (n=55)</th>
<th>Persistent* (n=195)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Use</td>
<td>147</td>
<td>184</td>
<td>354</td>
<td>625</td>
</tr>
<tr>
<td>Only Single Use</td>
<td>145</td>
<td>152</td>
<td>346</td>
<td>613</td>
</tr>
<tr>
<td>Any Concomitant Use</td>
<td>189</td>
<td>339</td>
<td>380</td>
<td>645</td>
</tr>
<tr>
<td>Days of Overlap</td>
<td>29</td>
<td>86</td>
<td>44</td>
<td>180</td>
</tr>
</tbody>
</table>

*denotes a significant difference (p<.05) between single/concomitant duration within the discontinuer and persistent groups

### Persistence of Antipsychotic Use

<table>
<thead>
<tr>
<th>MPRm^</th>
<th>Initiator</th>
<th>Discontinuer*</th>
<th>Intermittent</th>
<th>Persistent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only Single Use</td>
<td>0.63</td>
<td>0.62</td>
<td>0.55</td>
<td>0.85</td>
</tr>
<tr>
<td>Any Concomitant Use</td>
<td>0.77</td>
<td>0.81</td>
<td>0.58</td>
<td>0.89</td>
</tr>
<tr>
<td>Days of Overlap</td>
<td>0.15</td>
<td>0.25</td>
<td>0.12</td>
<td>0.28</td>
</tr>
</tbody>
</table>

^MPRm = medication possession ratio, modified; drug use days/(last claim date + days supply – index date)

*denotes a significant difference between single/concomitant duration within group
Time to Discontinuation of Concomitant Antipsychotic Use

Summary of Findings from Study 2

- Persistent pattern is associated with a greater likelihood of concomitant antipsychotic use
- Concomitant use is associated with a greater overall duration of exposure to antipsychotics
- Larger proportion of the prescription interval is concomitant use in persistent users
- Concomitant antipsychotic use is more chronic for persistent users
Discussion

- Study 1: Antipsychotic prevalence
  - Highest in foster care and the disabled
  - Associated with mood and behavior problems
  - Concomitant use more common in foster care
  - Longer duration of concomitant use in foster care

- Study 2: Concomitant use increases antipsychotic exposure
  - Average duration of antipsychotic use
  - Proportion of antipsychotic treatment days when >1 agent was used

Discussion

- Possible reasons for concomitant antipsychotics
  - Achieve a therapeutic effect at lower doses
  - Minimize the side effect burden
  - Help with sleep problems

- Safety concern because concomitant antipsychotic use typically has demonstrated greater side effects with only marginal benefits
  (Goren et al., 2008)
Limitations

- The cross-sectional nature of the study cannot imply causality
- Geographic limitation to one state/region
- Continuously enrolled may be the most impaired and care patterns may be quite different than non-continuously enrolled
- Dosing was not assessed
- Antipsychotic duration is not a measure of compliance or consumption
- Lack of data on illness severity, treatment decisions, and clinical outcomes

Next Steps

- Examine dosing
  - Are antipsychotic medications prescribed at sub-therapeutic doses to minimize side effects?
  - Is one antipsychotic prescribed at a low dose for sleep, whereas the second antipsychotic is dosed for chronic management of behavior/irritability?
  - Are both agents prescribed at high doses?
- Examine switching patterns
  - Do days of overlap reflect medication switching and cross-tapering?