Metabolic Monitoring in Patients Taking Antipsychotic Medications

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CUHCC RSS
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Objectives

1. Discuss the recommended metabolic monitoring parameters for patients who take antipsychotic medications
2. Explain the importance of completing this monitoring
3. Discuss residency project results
4. Review three CUHCC patient cases
Individuals with behavioral health conditions frequently have co-occurring physical health conditions.

Chart 2: Percentage of Adults with Mental Health Conditions and/or Medical Conditions, 2001-2003

- Adults with Mental Health Conditions
- Adults with Medical Conditions
- 29% of Adults with Medical Conditions Also Have Mental Health Conditions
- 68% of Adults with Mental Health Conditions Also Have Medical Conditions

Recommended Monitoring Parameters

**BASELINE**
- Personal & family history
- Weight & height
- Waist circumference
- Blood pressure
- Fasting plasma glucose
- Fasting lipid profile

**FOLLOW-UP**
- Weight
  - Reassessed at 4, 8, and 12 weeks and quarterly thereafter
- Glucose, lipids, blood pressure
  - Reassessed 3 months and annually thereafter
  - If normal lipid profile, repeat testing at 5 year intervals or more frequently if clinically indicated
Antipsychotic metabolic adverse effects are well-established

- **Metabolic syndrome:** 23-50%
- **Weight gain or obesity:** 6-55%
- **Type 2 diabetes:** 2-28%
- **Dyslipidemia:** 15-53%

**TABLE 2. Antipsychotics and metabolic abnormality risk in adults**

<table>
<thead>
<tr>
<th>Antipsychotic</th>
<th>Weight gain</th>
<th>Risk for diabetes or worsening lipid profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Atypical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clozapine</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Intermediate</td>
<td>Significant</td>
</tr>
<tr>
<td>Risperidone</td>
<td>Intermediate</td>
<td>Low or neutral</td>
</tr>
<tr>
<td>Paliperidone</td>
<td>Intermediate</td>
<td>Low or neutral</td>
</tr>
<tr>
<td>Iloperidone</td>
<td>Intermediate</td>
<td>Low or neutral or neutral*</td>
</tr>
<tr>
<td>Asenapine</td>
<td>Intermediate</td>
<td>Low or neutral or neutral*</td>
</tr>
<tr>
<td>Lurasidone</td>
<td>Low or neutral</td>
<td>Low or neutral or neutral*</td>
</tr>
<tr>
<td>Aripiprazole</td>
<td>Low or neutral</td>
<td>Low or neutral or neutral*</td>
</tr>
<tr>
<td>Ziprasidone</td>
<td>Low or neutral</td>
<td>Low or neutral or neutral*</td>
</tr>
<tr>
<td><strong>Typical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>Significant</td>
<td>Significant or neutral</td>
</tr>
<tr>
<td>Thioridazine</td>
<td>Intermediate*</td>
<td>Significant or neutral</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>Intermediate</td>
<td>Low or neutral</td>
</tr>
<tr>
<td>Fluphenazine</td>
<td>Low or neutral*</td>
<td>Low or neutral</td>
</tr>
<tr>
<td>Perphenazine</td>
<td>Low or neutral*</td>
<td>Low or neutral</td>
</tr>
</tbody>
</table>

Note: comparative data are limited, and risk varies based on individual factors, including time exposed to a given antipsychotic or whether concomitant drugs are prescribed.

* More data needed.
Importance

- Current screening practices are inadequate
  - Lack of awareness, unclear responsibility, difficult collaboration between primary and psychiatric care, and severity of psychiatric conditions
- Variety of interventions have been studied
  - Provider education, targeting patients, improving systems
- 2015 quality improvement project on this topic improved monitoring rates by 20%
Project Aim

The aim of the current project is to increase compliance by 20% for clinically appropriate monitoring in CUHCC patients on long-acting injectable antipsychotic medications by March 15th, 2021.
TIMELINE

Baseline chart review

Post-intervention chart review

Protocol Review

Education
Results

- 55 patients with active long-acting injectable antipsychotic medication orders
  - 0 of 55 patients received all monitoring at baseline
    - Excluding waist circumference, 10 (18%) did
  - After the intervention, 13 patients (23%) had received each of the monitoring parameters
    - 8 of these patients receive primary care at CUHCC

- 10 patients met criteria for metabolic syndrome
  - 5 had received all recommended monitoring
## Results

### Patient Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Overall patients</th>
<th>Number of patients with up-to-date monitoring</th>
<th>Percentage of patients with up-to-date monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>37</td>
<td>9</td>
<td>24%</td>
</tr>
<tr>
<td>White/Nonhispanic</td>
<td>8</td>
<td>1</td>
<td>12%</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>1</td>
<td>25%</td>
</tr>
<tr>
<td>American Indian</td>
<td>3</td>
<td>1</td>
<td>33%</td>
</tr>
<tr>
<td>White/Hispanic</td>
<td>2</td>
<td>1</td>
<td>50%</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>
# Results

## Primary Psychiatry Provider

<table>
<thead>
<tr>
<th>Primary Psychiatry Provider</th>
<th>Total patients</th>
<th>Number of patients with up-to-date monitoring</th>
<th>Percentage of patients with up-to-date monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>4</td>
<td>27%</td>
</tr>
<tr>
<td>B</td>
<td>13</td>
<td>3</td>
<td>23%</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>D</td>
<td>5</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>G</td>
<td>9</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>H</td>
<td>2</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>I</td>
<td>2</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>1</td>
<td>100%</td>
</tr>
</tbody>
</table>
Discussion

- Positive impacts
  - Project aim of increasing clinically appropriate metabolic monitoring by 20% was met
  - Coordinating care
  - Well-received by patients anecdotally

- Limitations
  - COVID-19
  - Frequent travel
  - Time constraints and difficult follow-up
  - Selection bias
Discussion

- Waist circumference
  - Barrier prior to and throughout the project
  - Research demonstrates importance
    - 25% increased mortality risk
    - 20% increased mortality risk persists even with normal BMI
    - Regardless of prevalent disease, smoking status, race/ethnic group
Next steps

- Update protocol - adjusting lipid monitoring frequency
- Clinical decision support tools
- Continued review and education
Nursing note template

*** presents to clinic for administration of LAI ***

Last injection given on ***, so patient is (SA124 LAI Due/Overdue: 43588)

### Lab Monitoring:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>137/86</td>
<td>02/02/2021</td>
</tr>
<tr>
<td>Pulse</td>
<td>105</td>
<td>02/02/2021</td>
</tr>
<tr>
<td>Resp</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>210 lb (95.3 kg)</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ideal Body Weight (kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body Mass Index Calculated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basal Metabolic Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse Score</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Pct Wt Change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Lab Results
<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGBA1C</td>
<td>11.5 g/l</td>
<td>02/15/2021</td>
</tr>
</tbody>
</table>

| Lab Results
<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIGLYC</td>
<td>163 (H)</td>
<td>07/08/2020</td>
</tr>
<tr>
<td>CHOL</td>
<td>162</td>
<td>07/08/2020</td>
</tr>
<tr>
<td>HDL</td>
<td>35 (L)</td>
<td>07/08/2020</td>
</tr>
<tr>
<td>LDL</td>
<td>125 (H)</td>
<td>07/08/2020</td>
</tr>
<tr>
<td>NONHDL</td>
<td>158 (H)</td>
<td>07/08/2020</td>
</tr>
</tbody>
</table>

No results found for: WBC, NEUTROPHILS, LYMPHOCYTES, MIDRANGE, RBC, HGB, HCT, MCV, MCH, MCHC, RDW, PLATELETs, MPV, MONOCYTES, MONOCYTESPT, EOSINOPHILS, BASOPHILS, BASOPHILSPT, MONONUCLEAR, BANDS

### RN Mental Status Assessment

**Overall Appearance:**

- Appearance: 11064::0

**Behavior and Manner:**

- Behavior: 11068::0

**Affect:**

- Affect: 11069::0

**Motor Activity:**

- Motor activity: 11071::0

**Speech:**

- Speech: 11073::0

**Eye Contact:**

- Eye contact: 11074::0

**Reported Mood:**

- Reported mood: 11075::0

**Thought Content:**

- Thought content: 11076::0

**Thought Process:**

- Thought process: 11079::0

**Perception:**

- Perception: 11078::0

**Orientation:**

- Oriented to: 11081::0

**Insight:**

- Insight: 11063::0

**Judgement:**

- Judgment: 11084::0

Administered injection, patient tolerated well. Given without difficulties. Walked pt out to schedule next nurse only aptt for administration of LAI.
PATIENT #1

Age: 44
Gender: Male
Diagnosis: Paranoid schizophrenia
Medication: haldol decanoate q 28 days

February
BP 158/100
A1c 7.6%
TGs 456, LDL 169

April
Phone visit with PCP
Adherence discussed
PATIENT #2

- **Age:** 34
- **Gender:** Male
- **Diagnosis:** Bipolar affective disorder
- **Medication:** Abilify Maintena q 30 days

**April**
- SCr 1.49
- TGs 211

**April**
- Established care with medical provider

**May**
- Completed COVID vaccine series
PATIENT #3

Age: 57
Gender: Male
Diagnosis: Paranoid schizophrenia
Medication: Invega Sustenna q 28 days

February
A1c 8.5%
TGs 229, LDL 104

March
Follow-up with medical provider

April
Completed COVID vaccination
Lessons learned

- Health Equity
- Team-based Care
- Comprehensive Care
- Practice Management

Among People with Any Mental Illness, Percent Receiving Services, 2015

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent Receiving Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>48%</td>
</tr>
<tr>
<td>Black</td>
<td>31%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>31%</td>
</tr>
<tr>
<td>Asian</td>
<td>22%</td>
</tr>
<tr>
<td>2 or more</td>
<td>46%</td>
</tr>
</tbody>
</table>

References


References

https://www.psychiatry.org/psychiatrists/cultural-competency/education/mental-health-facts
THANKS

Questions?
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taub032@umn.edu

Acknowledgements:
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