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Prescribing patterns of antipsychotics for agitation or delirium management in non-critically ill patients

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Background

- Agitation is often observed in patients within the hospital setting, with delirium being a common cause.¹
- In certain situations, it can result in injury to patients and staff, and pharmacological interventions such as antipsychotics may be required.
- Although certain antipsychotics may be preferred for certain individuals based on patient-specific factors, this may be overlooked during the prescribing process.
- There is little existing literature investigating the prescribing patterns of antipsychotics and whether these medications are appropriately prescribed based on certain patient factors.
- Many studies look at the efficacy of antipsychotics rather than appropriateness of agent choice.
- Project BETA (Best Practices in the Evaluation and Treatment of Agitation) is a compilation of the best evidence and consensus recommendations.
- Project BETA was developed by emergency medicine and psychiatry experts with the goal of improving the way providers approach acutely agitated patients.²
- Project BETA highlights certain patient-specific factors (e.g., oversedation with the elderly) that need to be considered when prescribing medications for agitation.
- However, there is little guidance for drug selection in patients with other comorbidities.

Purpose

- Provide insight as to whether there is an opportunity for implementing interventions, such as algorithms or order sets, that aim to optimize antipsychotic drug selection for inpatient use based on patient factors

Objective

- Assess the prescribing patterns of commonly prescribed antipsychotics that were started for agitation or delirium on patients admitted to non-critical care inpatient wards within a large tertiary medical center

Methods

Study design

- Retrospective review of medical records

Inclusion criteria

- 18 years old or older
- Hospitalized between March 1st and August 31st of 2019 or between March 1st and August 31st of 2021
- Prescribed any haloperidol, risperidone, quetiapine, or olanzapine during an admission
- Received at least one one-time dose or at least one as needed dose
- Has at least one of the following comorbidities indicated by the corresponding ICD-10 code on their problem list:
 - Alcohol use disorder (F10.20)
 - Agitation (R45.1)
 - Renal impairment (N18.9)
 - Obesity (Z68.3, Z68.4)
 - Parkinson's disease (G20)
 - Delirium (F05)
 - Liver impairment (K74.60)
 - Prolonged QTc interval (I45.81)
 - HIV/AIDS (B20)

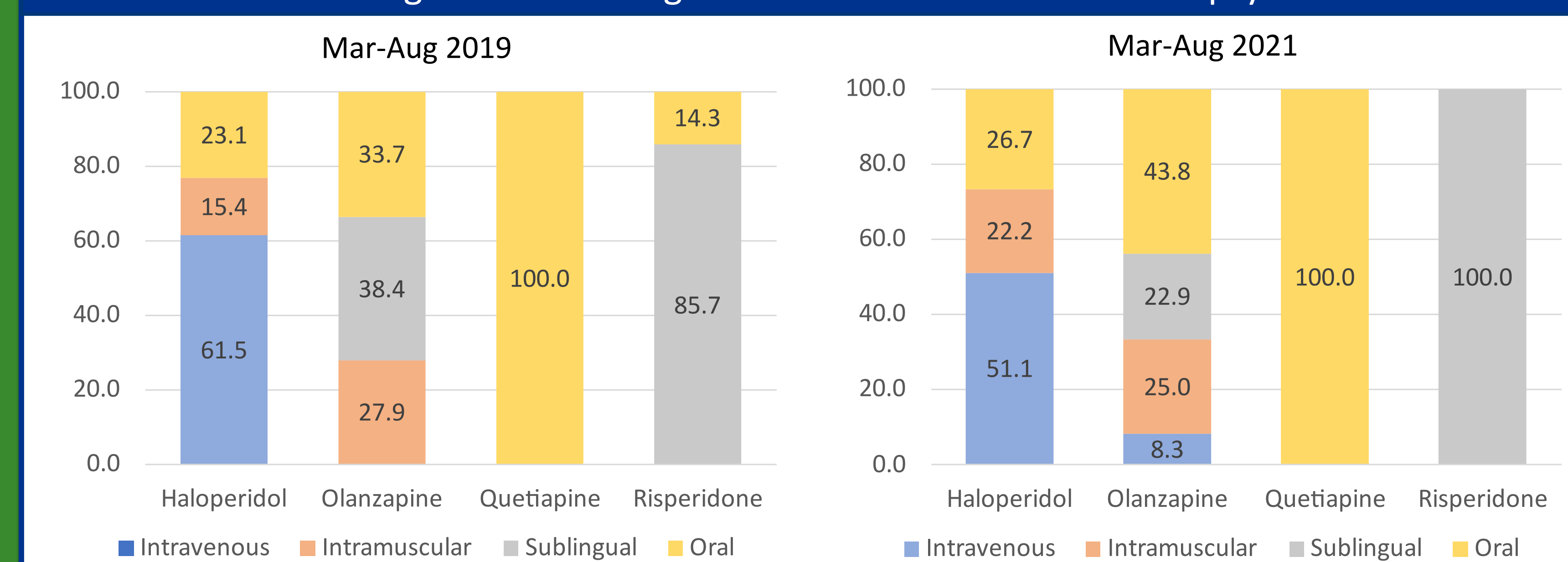
Exclusion criteria

- Less than 18 years old
- Critical care admission at any time during hospitalization
- Prescribed only scheduled antipsychotics or long-acting injectable antipsychotic
- Prescribed only prochlorperazine

Study Population

	Mar-Aug 2019	Mar-Aug 2021
Total number of subjects	99	74
Female	37 (37.4%)	31 (41.9%)
Male	62 (62.6%)	43 (58.1%)
Average age	64 years	63 years
Subjects with >1 comorbidity	24 (24.2%)	30 (40.5%)
Comorbidities		
Alcohol use disorder (F10.20)	34 (27.4%)	21 (20.0%)
Agitation (R45.1)	26 (21.0%)	24 (22.9%)
Renal impairment (N18.9)	21 (16.9%)	9 (8.6%)
Obesity (Z68.3, Z68.4)	19 (15.3%)	23 (21.9%)
Parkinson's disease (G20)	10 (8.1%)	13 (12.4%)
Delirium (F05)	8 (6.5%)	3 (2.9%)
Liver impairment (K74.60)	4 (3.2%)	9 (8.6%)
Prolonged QTc interval (I45.81)	1 (0.8%)	2 (1.9%)
HIV/AIDS (B20)	1 (0.8%)	1 (1.0%)
Number of antipsychotics prescribed per subject		
One	77 (76.8%)	46 (62.2%)
Two	14 (15.2%)	23 (31.1%)
Three	7 (7.1%)	4 (5.4%)
Four	1 (1.0%)	1 (1.4%)
Total number of antipsychotic orders	155	125
Olanzapine	86 (55.5%)	48 (38.4%)
Haloperidol	37 (23.9%)	42 (33.6%)
Quetiapine	25 (16.1%)	29 (23.2%)
Risperidone	7 (4.5%)	4 (3.2%)
Other	0 (0.0%)	2 (1.6%)

Percentage of Each Dosage Form Prescribed For Each Antipsychotic



Percentage of Each Antipsychotic Prescribed For Each Comorbidity



Discussion

Results

- Of the four primary antipsychotics in this review, olanzapine was the most prescribed for 2019 and 2021, followed by haloperidol and quetiapine. Risperidone was the least prescribed; this is consistent with the lack of data for risperidone use in acute agitation.³ Risperidone is also limited in its availability in oral formulations only.

Alcohol use disorder

- Benzodiazepines are preferred for agitation management in this population. ~20-30% of this study population had alcohol use disorder and was given an antipsychotic.

Renal impairment

- Risperidone may require renal dose adjustment.⁴ Of patients with renal impairment, other antipsychotics were preferred based on prescribing patterns.

Parkinson's disease

- Haloperidol is contraindicated in patients with Parkinson's disease (PD).⁵ Quetiapine has an off-label use for psychosis in PD.⁶ 31.8% of subjects with PD were prescribed haloperidol in 2019. This decreased to 22.7% in 2021. 27.3% subjects with PD were prescribed quetiapine in 2019. This increased to 63.6% in 2021.

Liver impairment

- Both quetiapine and risperidone may require caution and dose adjustment in liver impairment.^{4,6} Haloperidol and olanzapine were the only agents prescribed for subjects with this comorbidity in both 2019 and 2021.

Prolonged QTc interval

- IV haloperidol is associated with dose-dependent QTc prolongation and should be used with caution.⁵ Compared to other antipsychotics, quetiapine is associated with a lower risk.⁶ In this review, one subject with prolonged QTc received IV haloperidol (2021).

HIV/AIDS

- One subject from each year had HIV/AIDS. The 2021 subject was taking Biktarvy, which does not interact with any of the four primary antipsychotics in this study. The 2019 subject was taking Genvoya, which can potentially interact with all the antipsychotics except olanzapine.⁷

Limitations

- Some antipsychotics may have been ordered by providers after discussion with pharmacists regarding the most appropriate agent. These were not accounted for in this retrospective review.

Going Forward

- There is a potential for education in appropriate antipsychotic selection in certain patient populations, such as Parkinson's disease and alcohol use disorder.
- An investigation into whether pharmacist intervention or education has an impact on overall antipsychotic prescribing patterns may provide insightful results.

References

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