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COMPARATIVE EFFICACY OF INJECTABLE HALOPERIDOL VS. OLANZAPINE IN MANAGING ACUTE AGITATION

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ABSTRACT

Acute agitation is a common psychiatric emergency that poses safety risks. This study evaluates the comparative efficacy of intramuscular Haloperidol versus Olanzapine in managing acute agitation. Using the Richmond Agitation Sedation Scale (RASS), we assessed 68 patients pre- and post-injection. Both drugs significantly reduced agitation levels ($p < 0.001$), with Haloperidol demonstrating a greater reduction in RASS scores. Findings highlight Haloperidol's stronger tranquilizing properties, valuable in emergency psychiatry settings.

INTRODUCTION

Acute agitation occurs in nearly 10% of psychiatric patients and is marked by psychomotor hyperactivity, aggression, and disorganized thought [(1)] .Common causes of agitation include psychiatric conditions-schizophrenia, bipolar disorder, severe depression, anxiety, personality disorders, substance intoxication or withdrawal, and medical or neurological issues (dementia, encephalitis, thyroid disorders, hypoglycemia, brain injuries)[(2)].Left unchecked, agitation can escalate to violence, posing significant risks to both patients and healthcare providers. Rapid tranquilization with antipsychotics is a mainstay intervention. Haloperidol, a first-generation antipsychotic, and Olanzapine, a second-generation one, are commonly used. This study aims to compare their efficacy in managing acute agitation using RASS scores.Managing agitation in psychiatric settings requires a comprehensive approach which addresses the immediate symptoms as well as the underlying causes while simultaneously focusing on patient & medical staff safety[(3)].

The initial step in the management of acute agitation typically involves verbal de-escalation techniques, which are non-coercive strategies aimed at calming the patient, reducing emotional tension, fostering cooperation, and creating a therapeutic environment of safety and trust. These methods emphasize empathy, active listening, and respectful communication, serving as a foundation for establishing rapport and minimizing the need for more invasive interventions. However, verbal strategies may not always be feasible or effective, particularly in cases of severe agitation, impaired insight, or when the patient is experiencing perceptual disturbances or psychosis.

When non-pharmacological methods fail to achieve adequate symptom control, pharmacological interventions become the next line of management. These interventions should be individualized and aimed not only at controlling acute agitation but also at addressing the underlying etiology—be it a primary psychiatric disorder, substance intoxication or withdrawal, or a concurrent medical condition. A comprehensive clinical evaluation is essential to identify and manage these contributing factors effectively, thereby enhancing patient outcomes and minimizing the risk of recurrence.In rare and severe cases, when both verbal and pharmacologic measures are insufficient or when there is an immediate risk of harm, the use of physical restraints or seclusion may become necessary. However, these interventions should be employed with caution, as they can potentially exacerbate agitation, contribute to trauma, and compromise the therapeutic alliance between patient and clinician. Their use must be time-limited, regularly reviewed, and guided by strict clinical and ethical standards to ensure the safety and dignity of the patient, while protecting healthcare providers from harm.

AIMS AND OBJECTIVES

To compare the efficacy of Injectable Haloperidol vs. Olanzapine in Managing Acute Agitation By comparing RASS (Richmond Agitation Sedation Scale)[(4)]scores before and after treatment with Injectable Haloperidol or Olanzapine

MATERIALS AND METHODS

Study Design: Cross-sectional observational study
Sample Size: 68 patients
Study Period: 6 months
Setting: Department of Psychiatry, tertiary care hospital in Navi Mumbai

Inclusion Criteria

- Age >18
- Caregiver's informed consent obtained
- Patients treated by Department of Psychiatry in view of Acute Agitation

Exclusion Criteria

- Age <18
- Consent not obtained

Tools

Richmond Agitation-Sedation Scale (RASS) is a 10-point scale ranging from +4 (combative) to –5 (unarousable), used to assess levels of agitation and sedation in clinical settings. It helps guide sedation management, especially in ICU and psychiatric care.

Study Procedure

This research was cross-sectionally carried out in patients in the inpatient setting of a Tertiary Care Centre over 6 months. Prior approval by the Institutional ethics committee was obtained. 68 patients who met the criteria for inclusion were enrolled in the study after obtaining a written informed consent by a responsible caregiver. Demographic and clinical data of the patient and a detailed psychiatric evaluation was done.Patients were alternately administered either Olanzapine or Haloperidol Intramuscularly in order to assess the efficacy of these medications in managing acute episodes of agitation.

The Richmond Agitation-Sedation Scale (RASS) was used to measure agitation levels before the administration of each drug, as well as one hour post-injection, to evaluate the response. The collected data from these assessments were then analyzed statistically to evaluate the effectiveness and differences between olanzapine and haloperidol in reducing agitation.

RESULTS

During the period of assessment, 68 patients were referred to the department of psychiatry in view of acute agitation. Most

commonly from the Department of Medicine out of which males accounted for 61.8% (n=42), females 38.2% (n=26).

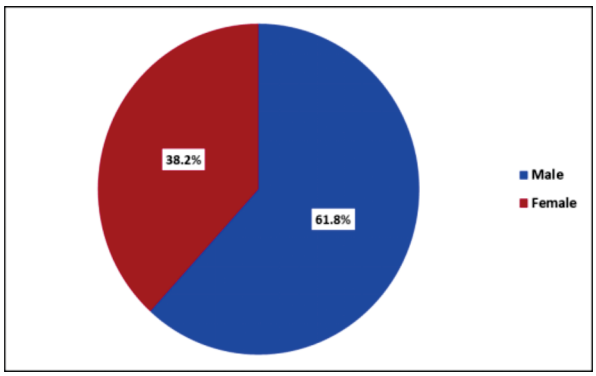

Figure 1: Demographic Characteristics

The baseline demographic profile of the study population revealed a mean age of 39.94 years, with a standard deviation (SD) of 15.10 years, indicating a broad age distribution among patients presenting with psychiatric illness.

Detailed history was recorded, Mental status examination was conducted to evaluate neuropsychiatric symptoms. RASS was applied on initial evaluation and the score recorded, patients were injected with either Inj Olanzapine or Inj Haloperidol based on the patient profile. RASS was applies 1 hour post injection and the new score recorded. Both treatment groups showed significant post-injection improvement in agitation levels (Olanzapine $z = 5.33, p < 0.001$; Haloperidol $z = 4.88, p < 0.001$).

Out of the 68 patients Haloperidol was prescribed to 31 patients (45.6%), while 37 patients (54.4%) were treated with Olanzapine.

Figure 1: Comparison of Z-scores for RASS Reduction

RASS score	Haloperidol		Olanzapine		Mann Whitney test	
	Mean	SD	Mean	SD	z-value	p-value
Pre test	3.48	0.63	3.00	0.91	2.23	0.026
Post test	-1.13	1.23	-0.54	1.22	1.99	0.047
Pre vs Post (Wilcoxon test)	z=4.88, p<0.001		z=5.33, p<0.001			
Pre to Post change	4.61	1.45	3.54	1.35	2.79	0.005

Both the Haloperidol and Olanzapine groups exhibited a statistically significant reduction in agitation levels, as measured by changes in RASS scores. The Haloperidol group showed a z-score of 4.88 ($p < 0.001$), while the Olanzapine group demonstrated a slightly higher z-score of 5.33 ($p < 0.001$). The percent improvement in the mean change in RASS score for patients treated with Haloperidol compared to those treated with Olanzapine is approximately 30.23%. Comparative analysis of pre- and post-treatment RASS scores within each group confirmed that both medications were effective in significantly reducing agitation, highlighting their therapeutic utility in the acute management of agitated patients.

DISCUSSION

Agitated patients present significant clinical challenges as their behavior can delay diagnostic processes, hinder effective treatment, and pose safety risks to themselves and others. Rapid tranquilization using intramuscular antipsychotics remains a cornerstone of emergency psychiatric management. Haloperidol is commonly utilized in low- and middle-income countries such as India due to its availability and cost-effectiveness[5] while Olanzapine is endorsed by the NICE guidelines for its efficacy and safety profile. Both agents are considered suitable for use in inpatient and outpatient settings[6].

In psychiatric practice, second-generation antipsychotics like Olanzapine are generally preferred for the management of acute agitation owing to their lower propensity to cause extrapyramidal side effects (EPS) compared to first-generation agents such as Haloperidol, while maintaining comparable efficacy. In instances where EPS—such as acute dystonia or tardive dyskinesia—emerged following Haloperidol administration, intramuscular Promethazine was effectively employed for symptom management.

In the present study, both intramuscular Haloperidol and Olanzapine were found to significantly reduce agitation levels, as evidenced by the marked improvement in RASS scores post-injection. Notably, Haloperidol demonstrated a greater reduction in agitation when compared to Olanzapine, suggesting a more pronounced therapeutic effect. This superior efficacy may reflect Haloperidol's stronger or more rapid sedative action, making it a potentially more effective agent in scenarios requiring immediate behavioral control. These findings support the clinical utility of Haloperidol in acute psychiatric emergencies, particularly where rapid symptom resolution is paramount.

CONCLUSION

The present study demonstrates that both injectable Haloperidol and Olanzapine are effective in managing acute agitation, as evidenced by significant post-injection reductions in RASS scores. Haloperidol showed superior efficacy in agitation control, albeit with a higher incidence of extrapyramidal side effects, which were managed with promethazine. Olanzapine, while marginally less potent, offered a favorable safety profile with fewer adverse events. These findings underscore the importance of individualized treatment selection, balancing efficacy with tolerability, particularly in resource constrained psychiatric emergency settings.

REFERENCES

1. Freeman DJ, DiPaula BA, Love RC. Intramuscular haloperidol versus intramuscular olanzapine for treatment of acute agitation: a cost-minimization study. Pharmacotherapy. 2009;29(8):930–6.
2. Garriga M, Pacchiarotti ,Isabella, Kasper ,Siegfried, Zeller ,Scott L., Allen ,Michael H., Vázquez ,Gustavo, et al. Assessment and management of agitation in psychiatry: Expert consensus. World J Biol Psychiatry. 2016 Feb 17;17(2):86–128.
3. Zeller SL, Rhoades RW. Systematic reviews of assessment measures and pharmacologic treatments for agitation. Clin Ther. 2010 Mar 1;32(3):403–25.
4. Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S, et al. Monitoring Sedation Status Over Time in ICU PatientsReliability and Validity of the Richmond Agitation-Sedation Scale (RASS). JAMA. 2003 Jun 11;289(22):2983–91.
5. Raveendran NS, Tharyan P, Alexander J, Adams CE. Rapid tranquillisation in psychiatric emergency settings in India: pragmatic randomised controlled trial of intramuscular olanzapine versus intramuscular haloperidol plus promethazine. BMJ. 2007 Oct 25;335(7625):865.YH
6. Bak M, Weltens I, Bervoets C, De Fruyt J, Samochowiec J, Fiorillo A, et al. The pharmacological management of agitated and aggressive behaviour: A systematic review and meta-analysis. Eur Psychiatry. 2019/01/15 ed. 2019;57:78–100.