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Review Article

# Efficacy and safety of blonanserin versus other antipsychotics: a review

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## ABSTRACT

Although many atypical antipsychotics are available, there is a need of an atypical antipsychotic effective in all symptom domains of schizophrenia and well tolerated especially for side effects like extrapyramidal side effects, weight gain and blood prolactin elevation. Blonanserin is an atypical antipsychotic which blocks dopamine D2 and serotonin 5HT2A receptors. Its efficacy and safety has been studied in patients with schizophrenia and delirium. Blonanserin is found to be effective and well tolerated in both conditions. This article has reviewed efficacy and tolerability of blonanserin in these two psychiatry diseases.

**Keywords:** Antipsychotic, Schizophrenia, Delirium, Efficacy, Safety

## INTRODUCTION

Schizophrenia is a complex heterogenous psychiatric disorder characterized by alterations in thought, perception, affect and behaviour that often impair personal, social and occupational functioning. Antipsychotics are used in treatment of schizophrenia. Atypical antipsychotics are effective in both positive and negative symptoms of schizophrenia. Advantages of atypical antipsychotics include lower propensity for extra pyramidal symptoms (EPS) than typical antipsychotics. However, adverse events like metabolic disturbances, weight gain, hyperprolactinaemia have been reported with atypical antipsychotics.[1] There is a need of an antipsychotic which is effective against all symptom domains of schizophrenia and does not lead to above adverse events.

## BLONANSERIN

Blonanserin is an atypical antipsychotic developed in Japan, which blocks dopamine D2 and serotonin 5-HT2A receptor.[2] The affinity at dopamine D2 receptors is higher than at serotonin 5-HT2A receptors.[3] PubMed review was done to search articles related to efficacy and safety of blonanserin in schizophrenia and delirium. The analysis of clinical trials of blonanserin in schizophrenia and delirium is discussed in this article.

## EFFICACY IN SCHIZOPHRENIA

### *Non-comparative study*

An open label study evaluated effects of blonanserin on cognitive function in first-episode schizophrenia in 24 antipsychotic-naïve patients with first-episode schizophrenia. Twenty first-episode patients completed the study. The results of this study suggested that blonanserin improves some types of cognitive functions associated with prefrontal cortical function.[4]

### *Comparative studies*

*Comparison with haloperidol*[5]*:* A randomized, double blind, multicenter study has demonstrated efficacy of blonanserin in acute schizophrenia. Blonanserin has shown greater efficacy in negative symptoms compared to haloperidol.

*Comparison with risperidone*[6]*:* A double blind study evaluated comparative efficacy and tolerability of blonanserin in Korean patients with schizophrenia. Blonanserin was found to be effective and its efficacy in schizophrenia was non-inferior compared to risperidone.

*Comparison with aripiprazole*[7]*:* A retrospective cohort screened 7936 outpatients and identified 703 patients diagnosed with schizophrenia or schizoaffective disorder. Out of this 149 patients were newly treated with aripiprazole, while 67, 95, 36, 74 and 120 patients were newly treated with blonanserin, olanzapine, quetiapine, perospirone, and risperidone respectively. Time to discontinuation was calculated for these second generation antipsychotics. Analysis showed that the time to discontinuation due to all causes was significantly longer for aripiprazole than for blonanserin, olanzapine, and risperidone.

*Efficacy in intractable schizophrenia*[8]*:* Blonanserin was studied in 48 Japanese patients for whom other atypical antipsychotics were not sufficiently effective (54.2%) or well tolerated (45.8%). Thirty three (68.75%) patients out of 48 patients continued blonanserin for 1 year. Blonanserin was more effective in 65.4% (17/26) and better tolerated in 95.5% (21/22) patients. Improvement was seen in mean Clinical Global Impression of Severity score and mean Global Assessment of Functioning score (Figure 1 and Figure 2).

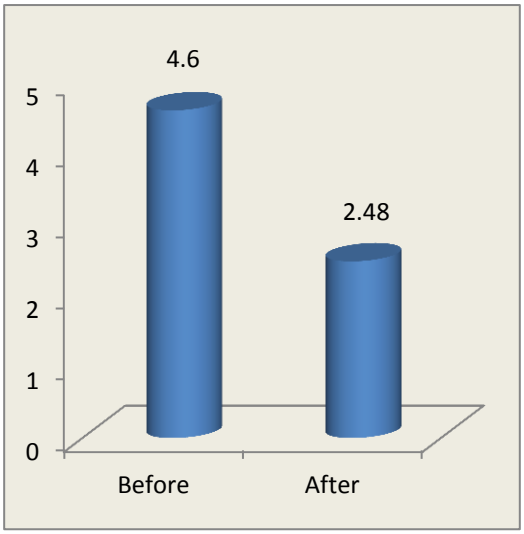


**Figure 1: Mean clinical global impression of severity score.**

The reasons for discontinuation of blonanserin are shown in figure 3.

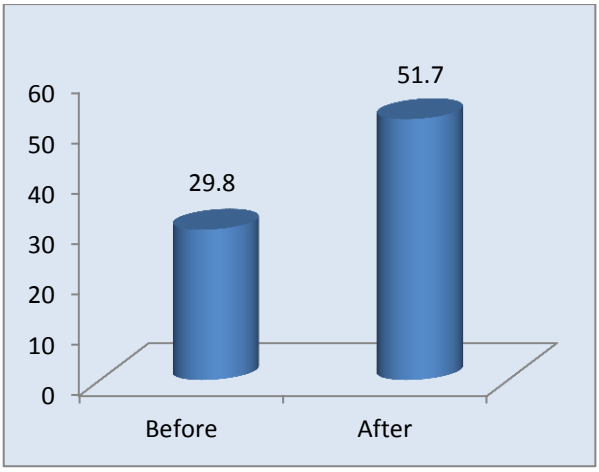


**Figure 2: Mean global assessment of functioning score.**

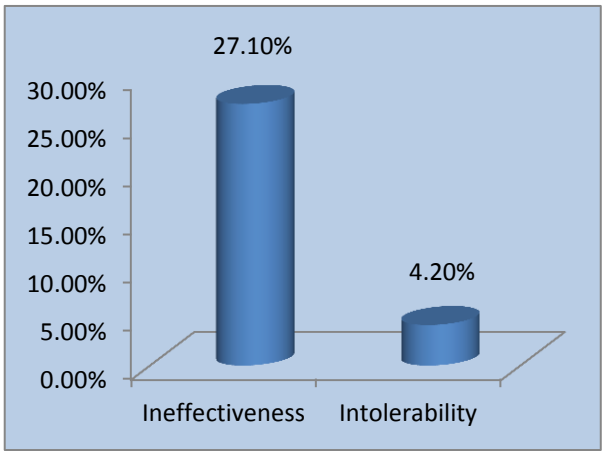


**Figure 3: Reasons for discontinuation of blonanserin (n=48).**

Results of this study showed that blonanserin may be effective and well tolerated for the treatment of schizophrenia either in patients not controlled by other antipsychotics or where other antipsychotics are not well tolerated.

## DELIRIUM

Delirium is a common symptom in patients admitted in intensive care unit (ICU)[9] and it often leads to longer hospital stay and higher mortality.[10] It is also postulated that blonanserin is effective in delirium because it improves dopamine and serotonin neurotransmitter abnormalities[11]. Blonanserin has been studied in delirium in emergency room and in ICU patients.

### *Review of blonanserin's efficacy in delirium*

*Efficacy in emergency room patients*[12]*:* An open label study showed usefulness of blonanserin in treating delirium in emergency rooms. Nine patients were studied in this trial. Results demonstrated significant reduction in Memorial Delirium Assessment Scale (MDAS) score from

18.1 (± 1.9) before treatment to 8.3 (± 6.1) after treatment (Figure 4).

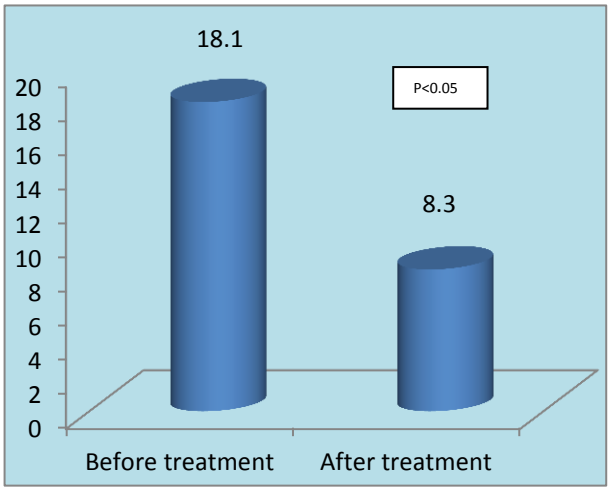


**Figure 4: Memorial Delirium Assessment Scale (MDAS) score.**

Blonanserin may be effective and well tolerated in the treatment of delirium patients in emergency rooms.

*Efficacy in ICU patients*[2]*:* A retrospective analysis of 32 patients with delirium in the ICU showed 96.6% had reduction in Memorial Delirium Assessment Scale score. Side-effects were seen in 24.1% of patients. Authors of this study concluded that blonanserin may be effective and safe in the treatment of delirium in the ICU.

*Efficacy in Alzheimer's disease*[13]*:* A 67 year old woman with Alzheimer disease was on 5 mg/day donepezil for approximately three years and presented with acute confusion, global impairment of cognition with disorientation, sleep disturbance, psychomotor agitation, hallucinations and delusions due to delirium at night. Blonanserin 8 mg/day was given for approximately one month in addition to donepezil. Delirium improved gradually and hence dose of blonanserin was reduced to 4 mg/day over approximately two weeks. Delirium improved and blonanserin was well tolerated without adverse events.

## TOLERABILITY PROFILE

Atypical antipsychotics cause less extrapyramidal side effects (EPS) than typical antipsychotic drugs. However akathisia have been observed even with atypical antipsychotic drugs. Furuse T and Hashimoto K (2010) have reported five cases of blonanserin-associated akathisia in patients with schizophrenia.[3] Safety profile of blonanserin is favorable than haloperidol, especially in relation to prolactin elevation and extrapyramidal symptom frequency.[5] Blonanserin is well tolerated and has better safety profile, particularly prolactin elevation compared to risperidone. Side effects like dysarthria, dizziness, increased alanine aminotransferase, aspartate aminotransferase, increased blood prolactin level are less frequently seen with blonanserin compared to risperidone. However, hand tremor occurred more frequently with blonanserin compared to risperidone.[6]

*Long term safety of blonanserin*[14]*:* Ten psychiatric patients (schizophrenia: 8, mental retardation: 2) were switched to blonanserin from other antipsychotics and followed for 1 year. In this study, hyperprolactinemia was seen more frequently in risperidone than in blonanserin. When compared to olanzapine, blonanserin showed hyperprolactinemia more frequently than olanzapine. Thus hyperprolactinemia was seen with risperidone > blonanserin > olanzapine. Weight gain was more common in olanzapine compared to blonanserin.

## CONCLUSION

Blonanserin is an atypical antipsychotic drug with specific receptor blocking action against- a Dopamine D2 and Serotonin 5HT2A. It is effective in the treatment of schizophrenia. It causes greater improvement of negative symptoms as compared to haloperidol. Risk of increase in prolactin level is less compared to risperidone.

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