The effects of Montelukast on depression and anxiety behaviors in rats

Ersoz Gonca

Bülent Ecevit University, Faculty of Arts and Sciences, Zonguldak-Turkey
e-mail address: ersozgonca67@hotmail.com

Objective: Montelukast is a leukotriene receptor antagonist used for the treatment of chronic asthma and to relieve symptoms of seasonal allergies. The Food and Drug Administration Committee issued a warning with regard to the correlation between suicide, psychiatric symptoms and the use of Montelukast. This report is entirely based on information from case reports on asthma patients. However, there may be a link between asthma and depression, which is the most important risk factor for suicide. Therefore, the increased suicide rate reported in asthma patients may not be dependent on Montelukast use. Likewise, a retrospective evaluation of clinical data found no elevated risk of suicide in patients treated with Montelukast. Therefore, there is a controversy about the proposed association. The aim of present study is to research the effect of Montelukast treatment on depressive and anxiety behaviors in healthy rats.

Methods: Twenty-two female Wistar albino rats (150–200 g) were used in this research. The rats were divided into two groups: a Montelukast-treated group (n=10) and a saline-treated control group (n=10). Montelukast was intraperitoneally injected at a dose of 10mg/100µl/kg for 10 days. A forced swimming test and open field test was performed on day 10 to evaluate the depressive and anxiety behaviors of rats. In the forced swimming test, rats were placed individually in a cylindrical tank (30cm width × 50cm height containing 25cm of water at 24±1oC) for 6min. In the open field test, rats were placed in a box (100×100×25cm) containing 16 equal squares for 5min. In the forced swimming test, total mobility time was determined as the sum of the time spent in climbing and swimming behaviors. The rats were judged to be immobile when they remained in the water without struggling. In the open field analyses, the time spent in the center squares, the time spent grooming, as well as the number of rearing, defecation and line crossing, were determined. The drug-treated group was compared to the control group. A Student’s two-tailed t-test and Mann-Whitney U test were used for parametric and non-parametric data, respectively. Data were expressed as means with standard error of the mean.

Results: Montelukast treatment induced depressive behavioral responses, with a significant increase in immobility time (Montelukast: 187±9 s versus 125±4 s for the control, p<0.001) and decrease in swimming time (Montelukast: 34±7 s versus 90±7 s for the control, p<0.001) and total mobility time (Montelukast: 52±9 s versus 110±13 s for the control, p<0.001). Montelukast treatment did not change any data regarding anxiety behaviors.

Conclusion: These results reveal that Montelukast treatment induced depressive behaviors in healthy rats, but it did not cause anxiety behaviors. These findings support the warning with regard to the correlation between suicide, psychiatric symptoms and the use of Montelukast. However, further studies are needed to test the effects of Montelukast on depression and anxiety in rats with experimentally-induced asthma, and to elucidate the mechanism of the effects of Montelukast.

Keywords: anxiety, depression, Montelukast

Descriptive evaluation of haloperidol decanoate treatment of schizophrenia inpatients: A retrospective review

Memduha Aydin, Bilge Cetin Ilhan, Abdulbaki Akyildiz, Ibrahim Eren

Department of Psychiatry, Konya Training and Research Hospital, Konya-Turkey
e-mail address: memduhaaydin@yahoo.com

Objective: Treatment adherence problems are common in the acute phase, in the long-term maintenance and in the prevention of relapse of schizophrenia. Using depot injectable antipsychotics are some of the options for pharmacological interventions that may be used to enhance medication adherence in patients. Haloperidol decanoate (HD) is one of the depot injections that have several clinical and practical advantages over oral haloperidol: better compliance and more predictable absorption, more controlled plasma concentrations, fewer extrapyramidal side effects. We aimed to evaluate patients followed in our clinic who have been treated with HD antipsychotic medication.
Method: Patients who had been consecutively admitted to the psychiatry inpatient clinic of Konya Training and Research Hospital between June 2013 and December 2014 with the diagnosis of schizophrenia under the treatment of haloperidol decanoate were reviewed retrospectively. A sociodemographic and clinical data form arranged by researchers completed from the files of inpatient schizophrenics including “Haloperidol decanoate treatment questionnaire”, Positive and Negative Syndrome Scale (PANSS), the Clinical Global Impression Severity Scale (CGI-S), Barnes Akathisia Scale (BAS) and Simpson Angus Scale (SAS), and serum prolactin levels. Forty-six (18 female, 28 male) patients included in the study were evaluated for severity of the disorder, clinical features on admission, haloperidol decanoate loading-dose schedules, previous depot injections, antipsychotic side effects, concomitant use of anti-parkinsonian drugs, use of polypharmacy, hospitalization rates and their treatment compliance.

Results: Forty-six (18 female, 28 male) patients were included in the study, 12 patients were excluded, 6 patients (2 female, 4 male), 5 patients (3 female, 2 male), 1 patient (male), respectively, because of extrapyramidal side-effects, dropouts and switching to other depot injection. Thirty-four patients (13 female, 21 male) who had been treated for at least three months with HD (50 mg-300 mg monthly) demonstrated improvement in psychotic symptoms. It is observed that HD loading-dose schedules varied among patients both in dosage, from 100 mg/month to 600 mg/month, and in dosing patterns, either 2 times in every 7 days or 4 times in every 5 days or full amount at once. Results indicated that usage of different dosage schedules did not affect the side-effect profile of patients. All patients were prescribed anti-parkinsonian therapy during the first month of loading-dose. Despite anti-parkinsonian therapy, extrapyramidal side effects were reported in 12 of 46 patients (6 excluded) in the first month of loading-dose. There were no significant hematological or biochemical changes. No local or systemic side effects were reported during the trial. Patients were well stabilized on their optimal dose schedule and tolerated HD treatment well. The number of hospitalizations and, when hospitalized again, the number of days in clinics was reported decreased after HD treatment.

Conclusion: Treatment guidelines for schizophrenia recommend that clinicians strongly consider depot medication for patients who may be non-compliant to antipsychotic treatment regimens. HD offers a useful alternative in the treatment of psychoses to orally administered haloperidol or to other depot antipsychotic drugs. Well-conducted and reported randomized trials are needed to assess the effects of HD versus oral antipsychotics and other depot antipsychotic preparations for people with schizophrenia in terms of clinical, social and economic outcomes.

Keywords: depot antipsychotics, haloperidol decanoate, schizophrenia


[Abstract:0555] Pharmacotherapies

Effects of risperidone and paliperidone on serum prolactin levels: a comparative study

Tugba Mutu, Esra Yazici, Atila Erol, Mustafa Ozten

Department of Psychiatry, Sakarya University Training and Research Hospital, Sakarya-Turkey

e-mail address: tugbamutu@gmail.com

Objective: Hyperprolactinemia is an important adverse effect of antipsychotic treatment. Hyperprolactinemia can lead to gynecomastia, galactorrhea, sexual dysfunction, infertility, oligomenorrhea, amenorrhea and osteoporosis. All of the typical antipsychotics are known to cause elevation in serum prolactin level. Atypical antipsychotics have a lower tendency for increasing serum prolactin levels when compared with typical antipsychotics, but effects of all atypical antipsychotics on serum prolactin levels are not similar. Paliperidone is a newly commercialized antipsychotic whose formulation includes the principal active metabolite risperidone and 9-hydroxyrisperidone, and it is claimed that it is an advantageous agent compared to risperidone, especially considering the side effects. We aim to research effects of atypical antipsychotics risperidone and paliperidone on serum prolactin levels and compare the results.

Methods: In this study, the records of inpatients treated with risperidone and paliperidone were screened retrospectively for the period from April 2014 to January 2015. The patients whose records had enough sociodemographic data and who had been screened for prolactin levels before treatment and in the second week of the treatment were included in the study. Patients who had already been in treatment were excluded; thus only new onset of risperidone or paliperidone is evaluated.

Results: A total of 95 patients were included in the study with diagnoses of schizophrenia, bipolar disorder, and other psychotic disorders. 83 patients have been treated with risperidone (risperidone group) and 12 patients with paliperidone (paliperidone group). The mean age of patients was 38.2 years and 48 were male, 47 were female. 53 patients were diagnosed with schizophrenia, 32 patients were with bipolar disorder, and 10 patients carried some other psychotic disorder. There were no significant differences between the risperidone group and the paliperidone group in the terms of age, gender and profile of psychiatric diagnosis. The mean initial serum prolactin level in patients was 47.5 ng/dl and the mean level measured in the second week of the treatment was