

SFDA SAFETY SIGNAL

“A signal is defined by the SFDA as reported information on a possible causal relationship between an adverse event and a drug, the relationship being unknown or incompletely documented previously. Usually more than a single report is required to generate a signal, depending upon the seriousness of the event and the quality of the information. A signal is a hypothesis together with data and arguments and it is important to note that a signal is not only uncertain but also preliminary in nature”

25-09-2022

Saudi Food and Drug Authority (SFDA) – Safety Signal of Olanzapine and the Risk of Congestive Cardiomyopathy

*The Saudi Food and Drug Authority (SFDA) recommends all health care professionals to be aware of the safety signal of **Congestive Cardiomyopathy** associated with the use of **Olanzapine**. The signal has been originated as a result of routine pharmacovigilance monitoring activities.*

Introduction

Olanzapine is atypical antipsychotic. The drug’s mechanism of action is not fully understood. It mainly mediates its antipsychotic action via dopamine and serotonin type 2 (5HT2) antagonism. ^[1] Congestive Cardiomyopathy (a.k.a. Dilated Cardiomyopathy) is a type of cardiomyopathy characterized by structural modifications of myocardium. Due to these modifications, abnormal stretching and dilation of heart chambers results in reduced pumping activity of heart muscle. Patients with Congestive Cardiomyopathy may remain symptom-free for unspecified period of time and then experience sharp deterioration in cardiac functions suddenly. ^[2] The aim of this review is to evaluate the risk of congestive cardiomyopathy associated with the use of olanzapine and to suggest regulatory recommendations if required.

Methodology

Signal Detection team at SFDA performed a signal review using National Pharmacovigilance Center (NPC) database, and World Health Organization (WHO) database, VigiBase, with literature screening to retrieve all related information to assess the causality between congestive cardiomyopathy and olanzapine use. The search conducted on August 2021.

Results

Case Review: Signal detection team at SFDA have searched Saudi national database and WHO database to find individual case safety reports (ICSRs) of congestive cardiomyopathy associated with olanzapine. While the search resulted in zero reported local cases, the search in the WHO database resulted in 20 global case-reports. The authors used signal detection tool (Vigilyze) to retrieve all reported cases. ^[3] Authors also applied WHO-UMC causality assessment criteria on ICSRs with completeness score (0.5) and above (n=9). Among them, 6 cases of congestive cardiomyopathy were possibly linked to olanzapine.

Literature: A scientific literature search was performed for olanzapine and risk of congestive cardiomyopathy. We found a case of 28-year-old male patient with bipolar disorder suffered congestive cardiomyopathy after taking olanzapine for 10 years was published in 2016. ^[4]

Datamining: The disproportionality of the observed and the expected reporting rate for drug/adverse drug reaction pair is estimated using information component (IC), a tool developed by WHO-UMC to measure the reporting ratio. Positive IC reflects higher statistical association while negative values indicates less statistical association, considering the null value equal to zero. The results of (IC= 1.4) revealed a positive statistical association for the drug/ADR combination.

Conclusion

The weighted cumulative evidence identified from assessed cases, literature and datamining are sufficient to suggest causal association between olanzapine and congestive cardiomyopathy. Health regulators and health care professionals must be aware of this potential risk and it is advisable to monitor any signs or symptoms in treated patients.

Report Adverse Drug Events (ADRs) to the SFDA

The SFDA urges both healthcare professionals and patients to continue reporting adverse drug reactions (ADRs) resulted from using any medications to the SFDA either online, by regular mail or by fax, using the following contact information:

National Pharmacovigilance Center (NPC)
Saudi Food and Drug Authority-Drug sector
4904 northern ring branch rd
Hittin District
Riyadh 13513 – 7148
Kingdom of Saudi Arabia
Toll free number: 19999
Email: NPC.Drug@sfda.gov.sa

References:

1. Beasley CM, Tollefson G, Tran P, Satterlee W, Sanger T, Hamilton S. Olanzapine versus Placebo and Haloperidol - Neuropsychopharmacology. Nature 1996. <https://www.nature.com/articles/1380403>
2. Dilated cardiomyopathy. Dilated Cardiomyopathy - ScienceDirect 2017. [https://doi.org/10.1016/S0140-6736\(16\)31713-5](https://doi.org/10.1016/S0140-6736(16)31713-5)
3. Vigilyze.who-umc.org. 2021. [online] Available at: <https://vigilyze.who-umc.org/> [Accessed 4/January/2022].
4. Theodore P. Olanzapine Induced Dilated Cardiomyopathy -. PubMed Central (PMC) 2016. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4976704/>