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Research Paper

A Review on the Comparison of Olanzapine versus Aprepitant in the Treatment of Chemotherapy Induced Nausea and Vomiting

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ABSTRACT
*The study was to carry out a review on the comparison of olanzapine with aprepitant in the treatment of chemotherapy induced nausea and vomiting (CINV)**.** Articles published in the period of 2004-2015 were collected for this study**.** Antiemetic therapy has proved to be far more efficacious in the treatment of vomiting than of nausea; therefore, new drugs and therapeutic approaches are required. The benefit of using an NKIR alone or in combination with a 5-HT3 antagonist or with a glucocorticoid significantly improved the rate of complete response in moderate and highly emetogenic chemotherapeutic agents. 3 clinical trials suggest that there is an increased risk of severe infection while using aprepitant which will further worsen the condition of the patients. On the other hand, olanzapine, an antipsychotic drug showed superiority in the prevention of vomiting and delayed nausea in a phase III trial conducted in 247 patients receiving cisplatin, doxorubicin plus cyclophosphamide.The head-to-head study of olanzapine versus aprepitant (with combined use of 5-HT3 antagonist and dexamethasone) for the prevention of CINV in phase Ⅲ clinical studies showed that olanzapine is more advantageous than aprepitant in treating chemotherapy-induced vomiting**.** Chemotherapy induced nausea and vomiting is potentially the most severe and most distressing leading to the discontinuation of therapy in many patients. Olanzapine shows better control of nausea and vomiting than aprepitant and is more tolerable; therefore, this readily available and low cost treatment should be popularized.*

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I. INTRODUCTION

Chemotherapy-induced nausea and vomiting (CINV) is associated with a significant deterioration in quality of life.[1] The emetogenicity of the chemotherapeutic agents, repeated chemotherapy cycles, and patient risk factors significantly influence CINV.[2]Several novel classes of anti-emetics have been developed and commercialized, becoming a nearly universal standard in chemotherapy regimens, and helping to better manage these symptoms in a large portion of patients.[3]

II. OBJECTIVE AND METHODS

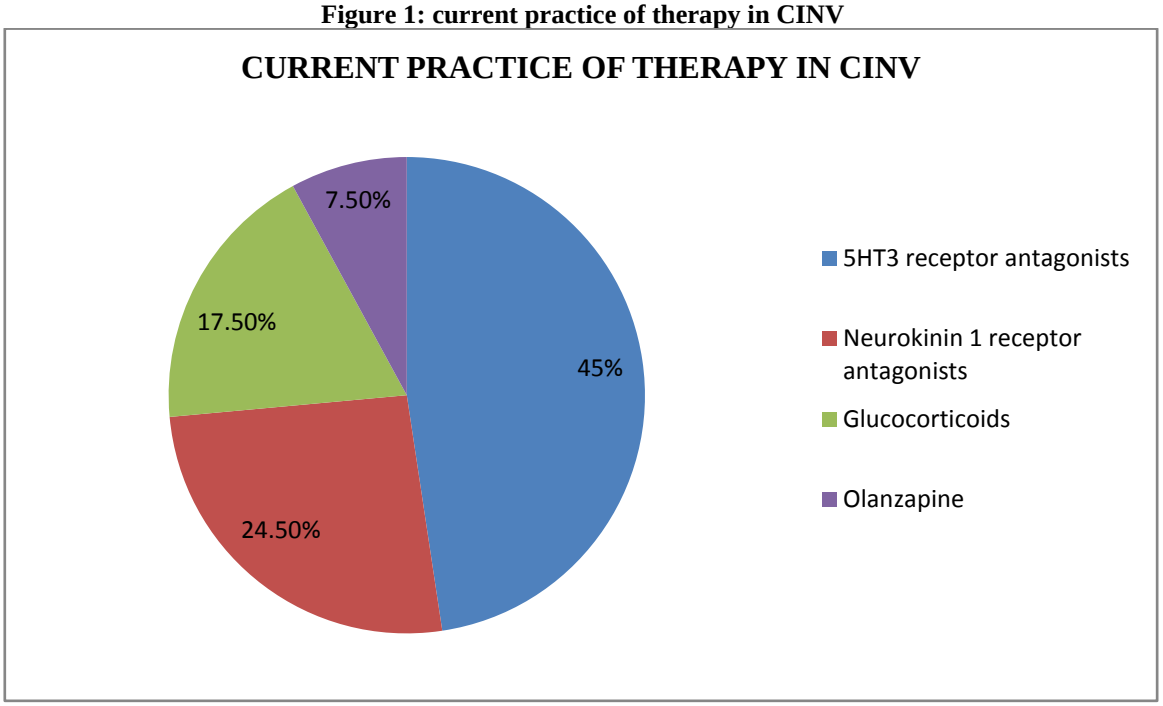
The objective of the work was to carry out a review on the comparison of olanzapine with aprepitant in the treatment of chemotherapy induced nausea and vomiting (CINV). Pubmed, Medscape and Medline databases were searched to identify the efficacy of both olanzapine (atypical antipsychotic) and aprepitant (neurokinin -1 receptor antagonist - NKIR) in the treatment and prevention of CINV. Articles published in the period of 2004-2019 were collected for this study.

III. RESULTS

As a more common symptom than vomiting, nausea is also more difficult to prevent and treat. Antiemetic therapy has proved to be far more efficacious in the treatment of vomiting than of nausea; therefore, new drugs and therapeutic approaches are required. The benefit of using an NKIR alone or in combination with a 5-HT3 antagonist or with a glucocorticoid significantly improved the rate of complete response in moderate and highly emetogenic chemotherapeutic agents.These drugs have excellent efficacy for control of acute vomiting but are relatively ineffective for delayed vomiting. 3 clinical trials suggest that there is an increased risk of severe infection while using aprepitant which will further worsen the condition of the patients. On the

other hand, olanzapine, an antipsychotic drug showed superiority in the prevention of vomiting and delayed nausea in a phase iii trial conducted in 247 patients receiving cisplatin, doxorubicin plus cyclophosphamide. Olanzapine is recommended as an option within first-line prophylaxis for CINV in the national comprehensive cancer network guidelines.it s effective in the treatment of refractory CINV due to its broad and potent inhibitory activity at multiple receptors involved in nausea and vomiting pathways.The head-to-head study of olanzapine versus aprepitant (with combined use of 5-HT3 antagonist and dexamethasone) for the prevention of CINV in phase Ⅲ clinical studies showed that olanzapine is more advantageous than aprepitant in treating chemotherapy-induced vomiting. Olanzapine also shows better control of nausea and is more tolerable; therefore, this readily available and low cost treatment should be popularized.

Figure 1: current practice of therapy in CINV



IV. DISCUSSION

This systematic review was conducted to assess the efficacy of olanzapine in (a) preventing CINV in highly emetogenic chemotherapy (HEC) and moderately emetogenic chemotherapy(MEC) and (b) the treatment of breakthrough CINV.The role of olanzapine in chemotherapy-induced nausea and vomiting (CINV) is supported from randomized controlled trials and national consensus guidelines such as the National Comprehensive Cancer Network. According to a clinical trial result published in the year 2012 olanzapine provides promising effect in the treatment of nausea and vomiting with less sedation as the adverse drug effect. A total of 488 patients from three trials of CINV prophylaxis and 323 patients from three trials of breakthrough CINV were included. Single agent olanzapine for breakthrough nausea was superior to standard alternative options. Figure 1 shows the current treatment sequence of CINV. Further studies are needed to evaluate the efficacy of the anti-psychotic drug.

V. CONCLUSION

Chemotherapy induced nausea and vomiting is potentially the most severe and most distressing leading to the discontinuation of therapy in many patients. Olanzapine shows better control of nausea and vomiting than aprepitant and is more tolerable; therefore, this readily available and low cost treatment should be popularized. In the included trials, short duration of olanzapine appears safe and well tolerated.

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