

The identification of ketotifen as a novel cardioprotective agent in patients undergoing anthracyclines chemotherapy

hosny elewa¹, Naser elberay², Walaa Keshk³, and Hamada Abulkhair⁴

¹Horus University

²Menoufia University

³Tanta University

⁴Al-Azhar University

February 8, 2021

Abstract

Objective: The present study aimed to investigate the possible cardioprotective effects of ketotifen and to assess its activity as an iron-chelating agent in patients receiving anthracyclines for the treatment of breast cancer. **Patients & Methods:** This was a randomized, prospective, controlled clinical trial. One hundred eleven eligible patients with breast cancer (age range, 30-60 years) were scheduled to receive anthracyclines chemotherapy. The patients were divided into two groups: Patients (n = 56) assigned to the ketotifen group received ketotifen 1 mg three times daily for six consecutive cycles of treatment, and patients assigned to the control group (n = 55) without ketotifen treatment. The echocardiogram for each patient was recorded two times at baseline and the end of the study. As well, blood samples were collected from all patients. **Results:** The findings showed a statistically significant reduction in the mean serum levels of common cardiotoxicity accompanied biomarkers in the ketotifen group compared with the control group (P [?] 0.05). The mean serum levels of total iron-binding capacity were significantly elevated in the ketotifen group (P [?] 0.001). There was a direct correlation between the mean serum levels of iron and that of lactate dehydrogenase (LDH) (r = + 0.79). On the other hand, there were indirect correlations between mean serum levels of LDH and both the percentage of ejection fraction and the total iron-binding capacity (r = - 0.69 and -0.697, respectively). **Conclusion:** Oral administration of ketotifen appears to be efficient and safe as a novel cardioprotective agent for the prevention of anthracyclines induced cardiotoxicity. Additionally, ketotifen suggested a beneficial effect in iron overload inducing diseases such as COVID-19.

Hosted file

IJCP MS.pdf available at <https://authorea.com/users/387711/articles/507848-the-identification-of-ketotifen-as-a-novel-cardioprotective-agent-in-patients-undergoing-anthracyclines-chemotherapy>

Hosted file

List of Figures, Charts, and Tables.pdf available at <https://authorea.com/users/387711/articles/507848-the-identification-of-ketotifen-as-a-novel-cardioprotective-agent-in-patients-undergoing-anthracyclines-chemotherapy>