

Novel use of Ketotifen as a cardio-protective agent in patients undergoing anthracycline chemotherapy

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January 6, 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. 111 eligible patients with breast cancer (age range, 30-60 year) were scheduled to receive anthracycline chemotherapy. The patients 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 at 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 was 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.

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