

Evaluation of administering levothyroxine in morning versus evening in Sari hypothyroid patients

S. Ala¹, N. Sasanpour^{2*}, O. Akha³, Z. Kashi³, A. Bahar³

¹Department of Clinical Pharmacy, School of pharmacy, Mazandaran University of medical sciences, Mazandaran, Iran

²School of medicine, department of clinical pharmacy, Mazandaran University of medical sciences, Mazandaran, Iran

³Department of Endocrinology, School of Medicine, Mazandaran University of medical sciences, Mazandaran, Iran

Background and Aims:Levothyroxine is a drug with a long half-life, but its intestinal uptake interferes by food or medication. Drug information references recommend that levothyroxine should be taken half an h before breakfast. But some of the patients prefer to take their drug in the evening. Previous studies in this field, show good results about changing the time of drug take from morning to evening. This study was a randomized double blind cross over placebo control that investigate the changes in serum level of TSH and T4 with changing the time of levothyroxine use from half an h before breakfast to half an h before dinner.

Methods:Fifty hypothyroid patients that refer to Endocrine Clinic of Sari (Iran), enrolled the study. Patients divided in two groups. The first group took levothyroxine half an h before breakfast, and placebo half an h before dinner. The second group took placebo half an h before breakfast and levothyroxine half an h before dinner. After two month, time of levothyroxine use, changed with each other (cross over change). TSH and T4 serum concentration were checked at three times (Baseline, after 2nd &4th month).

Results:With changing the administration of levothyroxine use from morning to evening, TSH (1.33 ± 0.51) significantly increased ($P < 0.05$). But T4 serum concentration not significantly changed ($P > 0.05$).

Conclusions:This amount of increasing in TSH level makes no sensible difference in patient's condition. So patients that have problem in drug taking in the morning can change use of their drug to evening. Indeed, It is better to emphasize that Levothyroxine should be used with empty stomach. Also for some patients like pregnant women, that TSH should be in a limited range and amount of difference is considerable, changing the drug dose should be notice.

Keywords: Levothyroxine; TSH; Morning; Evening