

The effect of narrow band UVB on serum levels of folate: Trial on patients with dermatologic disorders

Iran J Dermatol 2015; 18: 36-37

Dear Editor,

Folate plays an important role in metabolism and its deficiency can lead to cardiovascular problems or carcinogenesis. Some studies show that narrow band UVB (NBUVB) causes folate deficiency by photolysis ¹⁻³, while others have different opinions or even the contrary ^{4,5}. With regard to paradoxes in this context, we decided to study the effect of NBUVB on folate levels in patients with dermatologic disorders.

This study was done as a before-after trial on 20 patients referred to the Razi Skin Hospital, Tehran, Iran, from October 2010 to January 2012, whom planned to receive more than fifty (50) sessions of NBUVB phototherapy for their skin disorder by Waldman Apparatus and started the dosage of 200 mj and also consented to enroll in the study. Three of the patients pulled out due to necessitation of systemic drugs usage which affected the folate levels during the study or not completing phototherapy sessions and three more patients pulled out because secondary blood sampling was not conducted again. Finally, the study was performed on fourteen patients (10 men and 4 women). Serum folate levels of the patients were measured by Roche Inc kit in ng/ml and electrochemiluminescence method. The patients included six patients with psoriasis, one case of atopic dermatitis and seven with vitiligo. Subgroup analysis was performed on two groups; psoriasis and vitiligo.

The mean frequency of phototherapy sessions was 73 ± 23 sessions and the mean cumulative dose

of NBUVB was 15.2 j, which were not statistically different from the two groups ($P > 0.05$). All patients had normal folate levels before phototherapy and also all the patients had normal levels after the treatment. Kolmogorov - Smirnov test showed that folate levels are normally distributed. Serum folate levels showed no significant difference before and after phototherapy ($P = 0.167$), so that the mean folate levels before phototherapy was 10.07 ± 2.36 ng/ml and after phototherapy 9.05 ± 1.30 ng/ml, respectively.

Comparison of folate levels before and after phototherapy were also performed based on the type of disease. Only one case with atopic dermatitis was found, this comparison performed between psoriasis and vitiligo patient groups showed no statistically significant difference between serum folate levels before and after phototherapy in psoriasis and vitiligo patients ($P > 0.05$). Mean serum folate level before phototherapy in patients with psoriasis was 10.13 ± 1.52 ng/ml and in patients with vitiligo was 10.44 ± 2.92 ng/ml. Also, after phototherapy the mean serum folate levels changed to 8.25 ± 1.27 ng/ml in patients with psoriasis and 9.82 ± 0.97 ng/mL in patients with vitiligo.

Correlation test showed folate levels and also changes before and after phototherapy was not statistically significantly associated with age, sex and duration of disease ($P > 0.05$). However, changes in serum folate levels were statistically significantly associated with frequency of NBUVB phototherapy sessions ($r = 0.667$ and $P = 0.009$).

In recent years, UV phototherapy has been used as a common treatment for dermatologic

Table 1. Changes in serum folate levels in patients

Folate (ng/ml)	Before phototherapy	After phototherapy	P value
All patients	10.07 ± 2.36	9.05 ± 1.30	0.167
Male	9.85 ± 2.66	8.93 ± 1.17	0.351
Female	10.63 ± 1.50	9.34 ± 1.75	0.254
Psoriasis	10.13 ± 1.52	8.25 ± 1.27	0.098
Vitiligo	10.44 ± 2.92	9.82 ± 0.97	0.597

disorders and narrowband UVB phototherapy is a widely-used modality ⁶. Based on this study, it is recommended that, for treatment of skin disorders with UVB phototherapy, folate supplementation is not needed routinely. But in high-risk conditions and individuals such as pregnancy, lactation and patients using folate-lowering agents such as systemic interacting drugs, folic acid consumption should be considered. It is better to conduct a larger study with a larger sample size to measure the RBC folate levels in addition to serum folate. On the other hand, the effect of UVB on folate levels in various skin disorders should be examined. Small sample size and lack of any prediction for probable sample drop-out, in such a long duration and difficulty in continuing the course of the trial, were the main limitations of our study.

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Conflict of interest: none to declare

Received: 19 January 2015

Accepted: 25 February 2015