Net Letter

Evaluation of blood and urinary mercury in pemphigus vulgaris and pemphigus foliaceus patients and its comparison with control group

Sir,

In Iran, the annual incidence of pemphigus vulgaris is 10 per 100, 000 populations, which is higher than its worldwide incidence and the ratio of pemphigus vulgaris (PV) to pemphigus foliaceus (PF) cases is 12:1.[1]

Role of mercury as an environmental factor on induction or exacerbation of pemphigus is still unclear. Considering the high prevalence of pemphigus in our region and the lack of an explanation for high prevalence, we undertook a study to evaluate the possible role of mercury on pemphigus induction.

In this case-control study, 60 consecutive pemphigus patients who were referred to two major dermatology clinics of Mashhad University of Medical Science, Mashhad, Iran, from September 2011 to September 2012 were enrolled. Additionally, 60 sex and age-matched healthy individuals with a low risk of occupational mercury contact were enrolled as controls.

Gender, age, occupation, diet and mercury exposure was evaluated by means of questionnaire. Blood and urine samples were obtained from patients and controls. Blood samples were collected in ethylenediaminetetraacetic acid (EDTA) tubes and urine samples were collected in 10 ml sterile syringes and sent to Imam Reza toxicology center in less than 24 hours. Mercury content of samples was determined by flame atomic absorption spectrophotometry (Perkin-Elmer, Atomic Absorption Spectrophotometer 3030).

Written informed consent was obtained from each participant.

Among our 60 patients, 54 had pemphigus vulgaris and 6 had pemphigus foliaceus. There were 42 (70%) females and 18 (30%) males and the mean age was 44.5 ± 11.4 years. In the control group, there were 34 (56.7%) females and 26 (43.3%) males and the mean age was 45.7 ± 12.8 years. The mean age and sex distribution were similar in both groups ($P = 0.13$).

In patients with pemphigus vulgaris, the initial lesion was noted on the skin in 18 patients, in the mucosa in 33 patients and simultaneously on both skin and mucous membranes in 3 patients. The mean interval between skin and mucosal involvement in pemphigus vulgaris patients was 6.2 months. All pemphigus foliaceus patients developed their first lesion on the skin.

Mean ± SD levels of urinary and blood mercury in patients were 4.84 ± 1.9 and 1.4 ± 0.5 μ/L, respectively. In the control group, mean ± SD levels of urinary and blood mercury were 5.8 ± 2.9 and 1.8 ± 1.1, respectively. There was no statistically significant difference between patients and controls ($P = 0.073$ for urinary mercury and $P = 0.540$ for blood mercury).

In our study, male to female ratio was 1:2.3 and the ratio of pemphigus vulgaris to pemphigus foliaceous was 9:1. Female predominance and higher incidence of pemphigus vulgaris were also reported in other studies conducted in Iran.[2]

The presenting sign in 55.0% of pemphigus vulgaris patients was mucous membrane erosions and the mean interval between skin and mucosal involvement was 6.2 months. These results are consistent with other studies.[2]

We did not find a difference in the mean levels of urinary and blood mercury between controls and patients. Both the previous studies of Abréu Vélez *et al.*,[3] and Robledo,[4] which mentioned a possible correlation between mercury exposure and pemphigus induction were undertaken in areas of endemic

How to cite this article: Nikpour S, Yazdanpanah MJ, Afshari R, Maleki M, Ghayour-Mobarhan M, Shakeri MT, *et al.* Evaluation of blood and urinary mercury in pemphigus vulgaris and pemphigus foliaceus patients and its comparison with control group. Indian J Dermatol Venereol Leprol 2015;81:225.

Received: December, 2013. **Accepted:** February, 2014. **Source of Support:** Nil. **Conflict of Interest:** None declared.

pemphigus foliaceus with high levels of mercury contamination.

Further studies are needed to determine the role of mercury on induction of pemphigus. These studies should include accurate measurements of the level of contamination of natural sources in the area, assessments of the risk of exposure to mercury in patients and in residents of the contaminated area and assays of mercury level in urine or hair that shows chronic exposure to mercury. It is also recommended to compare mercury levels between patients with flare up of disease and patients who achieve remission with optimal treatment, to determine the possible triggering role of mercury.

ACKNOWLEDGMENTS

This project was supported by a grant from the vice chancellor for research of the Mashhad University of Medical Science for the thesis with approval number of 89723. The results presented in this work have been taken from Dr. Shafagh Nikpour thesis with the ID number 6801.

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Quick Response Code:	Website: www.ijdvl.com
	DOI: 10.4103/0378-6323.152329