

Nickel nuisance: A clinical observation

Sir,

Nickel allergy is a common and distressing dermatological problem. Nickel sensitivity is common in the general population and the prevalence rate varies from 4-13.1%.^[1] Nickel is present in many of the jewellery items; clothing material like metal zips, bra hooks, suspender clips, etc.; personal articles like watches, lipstick holder, knives, etc.; and household metals like kitchen utensils, machinery parts, orthopedic implants, etc. Human beings are continuously being exposed to nickel in the environment, be it in the home or workplace.

It is observed that nickel sensitivity is more common among females and the incidence rate is about 10% and it is increasing.^[2] One of the important causes for such high rate is availability of cheap fashion jewellery in the market that releases free nickel when coming in contact with body sweat, as well as frequent use of such jewellery by women. Nickel ions released from such materials, coming in contact with the human skin, may cause sensitization, especially when the contact is for a prolonged period.

In an effort to control the situation, several countries in the world have established regulations regarding the use of nickel in jewellery. For example, Denmark has banned the sale of any jewellery or clothing accessory that releases more than 0.5 $\mu\text{g}/\text{cm}^2/\text{week}$ of nickel.^[3] This effort of the Danish government has shown impressive results; Nielson *et al.* conducted a study where they observed the incidence rate of allergic contact sensitization to nickel and other allergens in Danish adults between 1990 and 1998. They found that there was a significant drop in the incidence rate of allergic contact sensitization to nickel after the restriction imposed by the Danish government.^[4]

Similarly, many western countries have passed similar laws for the benefit of the common people.

From 2001, the European Union Nickel Directive^[5] limits nickel in items intended for direct and prolonged contact with skin, such as jewellery, watches, buttons, spectacle frames, etc. The limit value for nickel release is 0.5 $\mu\text{g}/\text{cm}^2/\text{week}$. The nickel content in piercing posts has to be below 0.05%. In India, unfortunately, we do not have a similar type of law till date.

A study was conducted to detect free nickel released from jewellery/personal articles/clothing accessories generally used by the common people. In this study, 200 patients (112 females and 88 males) who attended my clinic for different skin problems were requested to participate. Dimethylglyoxime test was conducted to detect free nickel released from their jewellery/personal articles/clothing accessories. Dimethylglyoxime test is specific for nickel.

In this test, two chemicals are used: dimethylglyoxime (1% alcoholic solution) and ammonium hydroxide solution (10%). A drop of each chemical is applied to a small piece of cotton; then the piece of cotton is rubbed against the metal. If the cotton remains clear, the item has no free nickel and is unlikely to cause nickel dermatitis and the result is negative. If the cotton turns pink-red, it contains free nickel and may cause dermatitis in nickel-sensitive individuals and the result is positive. Any other color, except red-pink, is due to the presence of other metals and in such circumstances presence of free nickel cannot be ruled out and the result is inconclusive (indeterminate).

These chemicals cause no harm to the item tested. The results of the test are tabulated in Table 1.

The results of the study threw up some alarming facts about the most commonly used metallic items.

Table 1: Dimethylglyoxime test results of various jewellery/personal/household articles

Name of item	Total number	Result of chemical test		
		Positive	Negative	Indeterminate
Ear ring	112	36	64	12
Ring (Finger)	178	9	146	23
Necklace	78	1	72	5
Chain	55	2	53	0
Bangles	104	28	31	45
Nose ring	34	0	34	0
Spectacle frame	23	12	8	3
Safety-pin	92	92	0	0
Bracelets	45	11	28	6
Wrist watch (back of watch)	132	85	45	2
Amulet	21	7	3	11

Safety pins have ubiquitous usage across India and all the safety pins used by the participants showed positive result with dimethylglyoxime test; which should be a major cause of worry for its potential impact on most women across India.

Wristwatches, another very frequently used item, showed alarmingly high incidences of free nickel, with around 64% of the specimens testing positive. Wristwatches are potentially more hazardous as the area of skin contact is a lot more and are normally worn daily for prolonged periods. Though not prone to as much skin contact, spectacle frames showed a surprisingly high incidence rate, with half of them showing positive results.

Amongst jewellery items, earrings had the highest incidence rate, with a third showing positive results; followed by bracelets and bangles, which were very close, with every fourth testing positive. Jewellery items like rings, necklaces and chains showed the lowest incidence rates: in the range of 2-5%. Surprisingly, all the nose rings tested were found free from free nickel on dimethylglyoxime test.

The results of the study clearly show that many of the jewellery/personal articles/clothing accessories used by common people contain free nickel. Our market is flooded with these types of articles for consumers. Unknowingly, people are being exposed continuously to one of the commonest sensitizers in the world. Unless the public is informed about this menace and our government limits the use of nickel in jewellery/clothing accessories as is done in the

European Union, more cases of nickel allergy will come up. A legal restraint is the only way to protect the common people from this nuisance.

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Final push of leprosy: It is prudent to pause before declaration!

Sir,

This is in reference to the article '*Final push of leprosy in India: what is being pushed?*' published in IJDVL.^[1] We support the views of Rao and Lakshmi regarding the fallacies of the final-push strategy for elimination of leprosy.

'Final push' as a strategy was initiated by WHO in November 1999 with an objective to achieve the target of prevalence rate <1/10,000 by 2005. Though the prevalence of leprosy is decreasing, we should acknowledge the fact that operational aspects of the program also affect these figures. For example, reducing the duration of treatment by half for patients receiving MB-MDT from 24 to 12 months in effect reduces the prevalence rate by half for that group. Some patients receiving single-dose ROM (rifampicin,