

Decrease in frequency of occupational contact sensitivity to penicillin among nurses in Warsaw

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We have been patch testing nurses with penicillin (300,000 IU/g) since 1971. The frequency of such sensi-

Table 1. % of patients sensitive to penicillin, among the total number of patients with occupational contact dermatitis in Warsaw, in consecutive periods

Years	% of patients sensitive to penicillin
1971–75	1.56
1976–80	3.0
1981–85	9.77
1986–90	7.94
1991–95	2.13
1996–98	0.7

Table 2. Yearly use of benzyl penicillin in Poland during 1989–98

Year	No. of phials used
1989	20,944,000
1990	18,150,000
1995	15,105,000
1996	7,936,000
1997	6,043,000
1998	4,250,000

tivity achieved its highest point during 1981–85 (Table 1). During this period, almost all nurses with occupational contact dermatitis (10/11) were positive to benzyl penicillin (1, 2). After 1985, the frequency of occupational sensitivity to benzyl penicillin decreased, and in the 90s, only sporadic cases have been observed (0.7%). Nevertheless, 1 female patient presented in 1998, and another 1 in January 1999.

The decrease in frequency of penicillin sensitivity corresponds to the reduction in use of benzyl penicillin in Poland (Table 2), and an increase in the use of semi-synthetic penicillin. However, it was only possible to obtain detailed information about the yearly use of amoxycillin during a period of 2 consecutive years. In 1996, 3,241,200 amoxycillin ampoules were used in Poland, and in 1997, 3,535,183 ampoules.

References

1. Rudzki E, Rebandel P. Contact sensitivity to antibiotics. *Contact Dermatitis* 1984; 11: 41–42.
2. Rudzki E, Rebandel P, Grzywa Z. Patch tests with occupational contactants in nurses, doctors and dentists. *Contact Dermatitis* 1989; 20: 247–250.

Black dermographism and gold dermatitis

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Key words: gold; gold sodium thiosulfate; black dermographism; allergic contact dermatitis; late patch test reactions; bioavailability. © Munksgaard, 1999.

In 1994, Björkner et al. (1) reported a frequency of positive patch tests to gold of 8.6% among 823 consecutively patch-tested patients. Testing at other centers seems to confirm a much higher prevalence than once thought (2). Because most read patch tests a 2nd (and final) time at a week or less, some late responses may be missed (3).

Case Reports

Case no. 1

A 46-year-old machinist presented with a vesicular eruption of the hands and feet. He had many positive patch

tests, including ++ responses to quaternium-15, cobalt, cocamidopropyl betaine, triclosan, and formaldehyde and a +++ reaction to rosin. He had weak reactions to imadazolidinyl urea, thiuram mix, wool wax alcohols and Amerchol L-101, mercapto mix, nickel, balsam of Peru, and potassium dichromate. He had ++ responses to Bioban P 1487 (1% pet.) and 2-bromo-2-nitropropane-1,3-diol, and he reacted mildly (+) to multiple biocides in the Chemotechnique oil and cooling fluids tray, with a +++ reaction to abietic acid (10% pet.). He was also sensitive to a corticosteroid cream containing clobetasol dipropionate, tixocortol-21-pivalate 1% pet. and

a cream containing 1% hydrocortisone and pramoxine. He reacted to 1 pair (of 3 pairs) of work shoes.

His response to gold sodium thiosulfate 0.5% pet. (Chemotechnique) was + at D3 and ++ 38 days later. When told that the last response was probably not relevant, he uncovered a pruritic area of black dermatographism under the earpieces of his gold-rimmed glasses, and, when the black smudge was removed, raised erythema of contact dermatitis were clearly visible.

Case no. 2

A 44-year-old woman was seen with dermatitis of both lower eyelids, extending onto the cheeks. Her patch test to gold sodium thiosulfate 0.5% pet. (Chemotechnique) was + at D2 and ++ at D6. She also had mild (+) positives to Disperse Blue dyes 106 and 124. Otherwise, she had negative tests to other items in the standard tray and products that she used in the area.

She had a history of a reaction on her nose under her glasses, along the area where the earpieces touched her temples and where they would be exposed to make-up. There was a history of smudging which was considered contributory. The eyelids cleared by avoiding hand contact. She had never had a reaction under her gold jewelry.

Discussion

Gold responses can appear late even in those already sensitive (3). Their high frequency has been an enigma and many are not considered of current relevance, as the metal is not released in significant amounts by the chloride content of sweat (4). Belsito (5) found that some gold-allergic patients became clear after removing gold jewelry as a precaution, but many others were also clear without doing so.

The 2 patients here seemed to have greater bioavailability in areas where they experienced black dermo-

graphism, suggesting that gold located in the smudge may be more likely to cause dermatitis. Neither had ever had a reaction to a gold ring.

Rapson (6) presented the historical background of black dermatographism, as well as a detailed discussion of the probable mechanism for the phenomenon. For gold (and copper), natural substances such as glutathione- and sulfur-containing amino acids, e.g., L-cysteine, sometimes solubilize these metals, especially when alloys of the 2 are high in copper content (6). Gold alloys with copper and zinc seem to be released in greater quantity as the gold (or other precious metal) content decreases (7). Is it possible that gold can be made more bioavailable when abraded to smaller particles (increasing the surface area)? If so, some of the gold responses in persons with eyelid and facial eruptions may possibly be relevant.

References

1. Björkner B, Bruze M, Møller H. High frequency of contact allergy to gold sodium thiosulfate. An indication of gold allergy? *Contact-Dermatitis* 1994; 30: 144-151.
2. Koch P, Kiehn M, Frosch P J. Epikutane Testung mit Goldsalzen. Zwei Multicenterstudien der Deutschen Kontaktallergiegruppe. *Hautarzt* 1997; 48: 812-816.
3. Bruze M, Hedman H, Björkner B, Møller H. The development and course of test reactions to gold sodium thiosulfate. *Contact Dermatitis* 1995; 33: 386-391.
4. Lidén C, Nordenadler M, Skare L. Metal release from gold-containing jewellery materials: no gold release detected. *Contact Dermatitis* 1998; 39: 281-285.
5. Belsito D. *There's gold in Kansas City - gold allergy, that is*. Presentation, 10th Annual Meeting of the American Contact Dermatitis Society, New Orleans, LA, 8 March 1999.
6. Rapson W S. Skin contact with gold and gold alloys. *Contact Dermatitis* 1985; 13: 56-65.
7. Flint G N. A metallurgical approach to metal contact dermatitis. *Contact Dermatitis* 1998; 39: 213-221.

Allergic contact dermatitis and osteomyelitis due to sternal stainless steel wire

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Case Report

A 68-year old woman with myocardial infarction underwent coronary artery bypass grafting through a midline sternotomy incision. Stainless steel sutures (Ethicon; 316L stainless steel, 16 to 18% chromium, 10 to 14% nickel, 3% molybdenum, 60% iron, 0.03% sulfur, and 0.04% phosphorus) were used to close her sternum.

2 months postoperatively, she presented with fever at the Division of Cardiovascular Surgery, Suwa Central

Hospital. Antibiotics was administered and, 3 days later, she developed chest pain around the sternal scar. Computer tomography of the chest showed partial non-union of sternum and osteomyelitis. After a 10-day fever, erythema began to appear at the site of the sternal scar. Local treatment with corticosteroid ointment was applied, but the erythema worsened. She was referred to Division of Dermatology, where erythema on and around the sternal scar was observed, accompanied by soft nodules at the site of sternal wire. She complained of slight pain.