Patch Testing with Metals with Focus on Gold

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Ann-Kristin Björk, on March 3, 2017, defended her doctoral thesis titled "Patch testing with metals with focus on gold. Available from: http://portal.research.lu.se/ws/files/21080493/Ann_Kristin_Bj_rk_009_.pdf.

In this thesis the aims were to improve our basic knowledge of gold as a contact allergen and our understanding of the patch testing technique. The thesis is based on 4 studies:

I. An experimental study where dilution series were patch-tested simultaneously.
II. A provocation study where volunteers (none had any known allergy to gold or nickel) were exposed to gold and stainless steel discs.
III. An experimental double-blind study where patients with lichen sclerosus and age- and sex-correlated controls were patch-tested.
IV. A retrospective study with patients tested with gold and nickel between 1995 and 2014.

Aims

The aims were *(i)* to investigate the reproducibility of the patch test technique with regard to where the allergen is patch tested and the reactivity; *(ii)* to investigate if gold is released on the skin when the object is in prolonged contact in an occlusive environment, and to find if a systemic uptake can be found from this exposure; *(iii) to* investigate whether contact allergy, and especially contact allergy with regard to metals, is more frequent in patients with genital lichen sclerosus et atrophicus; and *(iv)* to retrospectively investigate the dermatitis patients, patch-tested in Malmö, with regard to the metals gold and nickel.

Findings

In study I the reproducibility in patch testing did not differ on the back, however as the reactivity decreased so did reproducibility.

In study II it was shown that gold can be released to the skin when in prolonged contact, and the release increases with time.

Study III aimed at finding clinical relevance of contact allergy, especially to gold, in patients with lichen sclerosus. No association was found.

Study IV aimed at improving our knowledge on contact allergy to gold in general and possible associations with basic characteristics of the patients such as atopy, sex and age. In the study there was an association between gold-allergy, age, sex, atopy and facial dermatitis.

Ann-Kristin Björk with Professor Lennart Emtestam (Opponent), Department of Dermatology, Karolinska Institutet, Stockholm to the left and Associate professor Cecilia Svedman (Main Supervisor), Department of Occupational and Environmental Dermatology, Lund University, Malmö to the right.

List of publications

1. Björk A-K, Bruze M, Engfeldt M, Nielsen Ch, Svedman C. The reactivity of the back revisited. Contact Dermatitis 2016 Sep 4. doi: 10.1111/cod.12657. [Epub ahead of print]
2. Björk A-K, Bruze M, Engfeldt M, Persson L, Lundh T, Svedman C. How much metal is released to the skin during prolonged occlusion of gold objects? Submitted Contact Dermatitis.
3. Björk A-K, Svedman C, Asplund H, Lingärde S, Hindsén M, Hradil E, Bruze M. Contact allergy and vulvar lichen sclerosus et atrophicus. Immunome Res 2014: 10: 2.
4. Björk A-K, Bruze M, Edman B, Engfeldt M, Björk J, Lövkvist H, Isaksson M, Pontén A, Svedman C. What can be learnt from patch testing with gold? A retrospective analysis of consecutive data from 1995 to 2014. In manuscript.