

# 10

## REMARKABLY HIGH PREVALENCE OF MILD COMPLAINTS IN TATTOOS INCLUDING PHOTOSENSITIVITY HITHERTO NOT RECOGNIZED

**Katrina Hutton Carlsen**<sup>1</sup>, Jørgen Serup<sup>1</sup>.

<sup>1</sup>*Department of Dermatology, Bispebjerg University Hospital, the "Tattoo Clinic"; (Copenhagen, Denmark).*

**Aim:** To find the prevalence of complaints in tattoos with emphasis on chronic complaints, photosensitivity and photodynamic events.

**Methods:** Individuals sunbathing June to September 2011 at the beaches of Denmark were invited to participate since they are prone to report tattoos and sun habits reliably. Sun related and non sun related problems in tattoos were determined and participants' use of sunscreen. Skin type was categorized as motifs and colors associated with problems.

**Results:** Of 467 sunbathers, 146 (31.3%) had tattoos. 144 with 301 tattoos accepted inclusion. Complaints were experienced in 60/144 (42%), 31/60 (52%) were sun related as swelling (58%), itching/stinging/pain (52%) and redness (26%). Reactions independent of sun were 29/60 (48%), reactions to heat 12/29 (41%) and cold 1/29 (4%). Red, blue and black tattoos predominantly caused sun related complaints followed by the remaining colours. By number, problems in black tattoos dominated since black was far more frequent. Reaction to light was not confined to one chemical entity or class of pigment. Symptoms may switch on and off in seconds or be variable and of longer duration.

**Conclusions:** Complaints such as swelling, itching, stinging, pain and redness are common, predominantly in black and red tattoos but also in blue tattoos. Thus, dark tattoos absorbing a broad range of wavelengths predominate. Photochemical reaction to pigment or pigment metabolites in situ in the skin with induction of reactive oxygen species (ROS) is suggested to be one causative mechanism among others. In black tattoos induction of ROS may depend on aggregation of pigment nanoparticles.