

Dermatoporosis. An extreme expression of skin ageing

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Introduction

First termed by Kaya and Saurat in 2007 dermatoporosis or chronic cutaneous insufficiency is described as a pathological mechanism of decreased skin mechanical function due to aging and chronic sun exposure. Cutaneous lesions consist of atrophy, purpura, pseudoscars, skin lacerations and haematomas and are located mainly on the forearms and shins. Corticosteroids can act like a trigger of the disease. Literature data on dermatoporosis are limited, studies on epidemiology and risk factors were conducted only in France and Finland. Based on the increased lifespan, the disease is expected to become more frequent and severe in the near future with important medical and social implications.

Aim

To evaluate the risk factors, comorbidities, clinical aspects respectively the morphological and physiological skin parameters in patient with dermatoporosis.

Materials and Methods

The study comprises a group of 40 patients with dermatoporosis diagnosed according to the criteria set up by Kaya and Saurat in 2007. After a primary evaluation of age, gender, provenience, Fitzpatrick skin phototype and level of education a control group was created with the same characteristics (*group 2* comprised patients over 60 years old without dermatoporosis). In order to obtain more accurate data, especially in paraclinical investigations other two groups were created based on age criteria (*group 3* comprised patients aged 40-60 years old and *group 4* patients aged 20-40 years old). Demographic data, sun exposure behaviour, comorbidities, and medication were assessed for each patient. All patients were subjected to a comprehensive skin examination, which involved the assessment of tumour formations and degenerative alterations of the ageing skin according to the literature. Cutaneous ultrasonography, skin hydration level, transepidermal water loss (TEWL) and polarized videoscropy were also performed in sun exposed and non-sun exposed areas but also of the dermatoporotic skin. The statistical analyses was performed by the use of Chi-square, Mann Whitney, Anova, Kruskal Wallis, Dunn, Pearson and Spearman tests.

Results

Patients with dermatoporosis were more frequently women (B:F= 6:34) coming from rural areas (85%) with professional sun exposure and Fitzpatrick skin type II (82.5%). Patients with dermatoporosis present higher prevalence of basal cell carcinoma (10% versus 2,5%

in the control group), actinic keratosis, and seborrheic keratosis. Degenerative skin alterations like poikiloderma Civatte, solar elastosis and senile comedones appeared in a higher percentage. The risk factors of skin ageing were strongly correlated with clinical degree in all four groups (Spearman correlation, $p < 0.0001$).

Arterial hypertension, anaemia and the use of anticoagulants were more frequently present in patients with dermatoporosis than in the control group ($p < 0.05$). Hepatic dysfunction, dyslipidemia and chronic kidney disease occurred more often but not significantly ($p > 0.05$). There was no difference between the two groups in the prevalence of diabetes mellitus, pulmonary diseases, neuropsychiatric and endocrine disorders ($p > 0.05$).

Cutaneous ultrasonography found a severe degree of skin atrophy in dermatoporotic areas (average 0.74 mm compared to normal skin 1.5 mm) but regarding other skin areas did not find differences between the two groups ($p > 0.05$). Regarding skin hydration level, in sun-exposed areas there were no significant differences between the two groups but interestingly, in photoprotected areas, the patients with dermatoporosis displayed a significant decrease in skin hydration and TEWL in comparison with the control group ($p < 0.05$). While applying polarized videoscropy we found that with advancement of age the cutaneous quadrillages tend to disorganise and an increased intensity of pigmentation, scales and follicular orifices appear in sun-exposed areas. It was observed that with the advancement of age in photoprotected areas the cutaneous quadrillages tend to disorganise, and pigmentation significantly increased, scales and vascular changes also occurred. Videoscopies showed no difference between the two groups regarding the sun-exposed areas but patients with dermatoporosis present a higher intensity of skin alterations in sun protected regions compared to controls ($p < 0.05$).

Conclusions

- The obtained results indicate that patients with dermatoporosis present an increased risk for developing skin tumours like basal cell carcinoma, actinic and seborrheic keratosis.
- Recognising the presence of dermatoporosis may indicate the presence of arterial hypertension and anaemia, hence anticoagulants must be used carefully in these patients.
- The alteration of physiological parameters like skin hydration and TEWL in sun-protected areas demonstrate that besides chronic sun exposure, intrinsic skin ageing also has a major role in the formation of dermatoporosis.
- The examination of the sun protected areas in elderly patients with polarized videoscope can evaluate the risk of developing dermatoporosis.