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Skin ageing: A comparison between Chinese and European populations A pilot study

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Summary

Background: Although limited data are available, it is commonly considered that Europeans and Asians have different skin ageing features.
Objectives: The present studies have been carried out to evaluate the influence of age and sun-exposure on the main clinical signs of Asian skin ageing.
Methods: One hundred and sixty Chinese and 160 French age-matched women (age range: 20—60 years old) were clinically examined and scored by the same dermatologist. Facial wrinkles (crow's-feet, glabella and perioral wrinkles) and pigmented spots (on face and hands) were assessed in situ and standardized photographs of the face were taken. Lifelong sun-exposure was estimated from answers to a questionnaire. Comparisons were made between 10-year age groups.
Results: Results show that, for each facial skin area, wrinkle onset is delayed by about 10 years in Chinese women as compared to French women. Facial wrinkling rate over the years is linear in French women and not linear in Chinese women who appear to experience a fast ageing process between age 40 and 50. Pigmented spot intensity is a much more important ageing sign in Chinese women (severe for 30% of women over 40) than in French women (severe for less than 8% of women, irrespective of age).
Conclusion: These first results underline that main skin ageing features (wrinkles, spots) progress differently in the Chinese and French women we have studied. They require to be confirmed on broad multicentre studies involving larger cohorts.
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1. Introduction

It is generally recognized that Asian and European skins age differently [1—3]. Identification of specific features of ageing process in each population is of prime interest to use most appropriate tools for evaluation and develop prevention measures and skin care products more adequately targeted to the specific needs. Asian skin ageing has notably been investigated by Korean [4] and Japanese studies [5,6]. It was shown that the early onset of marked pigmented spots was more characteristic of skin ageing [7] than wrinkle development albeit the latter appeared to be a primary skin ageing sign [2]. However, there is no study providing a rigorous comparison of skin ageing in European and Asian populations. Reported comparisons relied on the results of studies using different methodologies rather than on specifically designed trials to compare ageing signs in both skin types [8]. We therefore devised a specific study protocol to collect comparable skin ageing data in Chinese and French women in order to determine and quantify the skin ageing characteristics in each population. As it was important in our design to have one single investigator in charge of all the clinical evaluations, we chose to begin with a pilot study involving a sample whose size was in accordance with such a design.

2. Subjects and methods

2.1. Study description

This two-fold study was conducted on two French and Chinese female populations in their respective country. In the initial part of the study, all women were examined in situ by the same dermatologist who also took photographs on each volunteer. Standardized photographs were taken between November and December 1999 in France and from late December 1999 to early January 2000 in China. In the second part of the study, the standardized photographs of all subjects involved in the study were clinically assessed by a second dermatologist.

2.2. Subjects

Three hundred and twenty healthy women including 160 in Besançon (France) and 160 in Suzhou (China) were involved in the trial after giving their informed consent and in full agreement with local ethics committees. They were distributed by age decade (age range: 20—30, 31—40, 41—50, 51—60, respectively) into four identical sub-groups of 40 volunteers in each center.

2.3. Clinical investigation

It consisted of a clinical interview and a two-fold clinical assessment.

- The clinical interview was based on standardized questions on occupation, lifestyle and habits (smoking, sun-exposure). The skin phototype of French women was determined according to Fitzpatrick classification [9]. In Chinese women, only the facial skin complexion (fair, medium or dark) was assessed, due to the limits/deficiencies of Fitzpatrick classification when applied to non-Caucasian skin [10].
- In the first part of the clinical assessment, wrinkle intensity was determined in situ on three facial areas: the glabella, crow's-feet, and perioral areas. The clinical wrinkle severity score was determined using a 3-point grading scale: none, few and many wrinkles. Similarly, the intensity of benign facial pigmentation disorders was assessed using a 3-point scale: none, few and many pigmented spots.
- In the second part, photographs of all subjects were assessed by a single dermatologist for wrinkle intensity at crow's-feet and perioral areas. Standardized facial photographs of subjects were taken using a specific stereotactic photo device (Canfield Scientific, Inc., Fairfield, NJ). The position of face, lighting and distance from face to camera were invariable. A Nikon N6006 camera was used to take en face (1:6 magnification) and side views (1:4 magnification) focused on crow's-feet. Subjects were instructed to gently close their eyes and relax their face as much as possible. The crow's-foot wrinkle severity score was designed using a 14-point photographic scale (0 for no wrinkle and 14 for maximal wrinkling intensity). The perioral wrinkle severity score was designed using a 9-point digital scale (0 corresponding to no wrinkle and 9 to maximum wrinkling severity). The side of the face photographed was selected according to a pre-established randomization program. The same side of the face was used for the clinical assessment.

2.4. Statistical analysis

Wrinkle prevalence was compared by population (Chinese or French) and anatomical area using repeated measures analysis (areas) on binary data, with a GEE-type approach (generalized estimating equations), binomial distribution and a logit link function for the wrinkle answer (yes/no) variable. Wrinkle clinical score comparison was performed

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