



Association of Nanobacteria with Dermatological Diseases

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Introduction: Nanobacteria are newly-found autonomously replicating particles that have been detected in mineral stones like in kidney stones (1). The nature of nanobacteria has been the focus of intensive research for a few years, and also scientific debate has been carried out, especially, whether to name the particles as nanobacteria (nanoparticles) since their properties are clearly distinct from those of the bacteria in general. Nanobacteria have been detected in fetal bovine serum as well as in human serum. In dermatology, there are numerous skin diseases with unknown etiology, and infective origin has been suggested. Thus, nanobacteria were studied in various dermatological diseases.

Methods: Blood samples and skin biopsy specimens from various skin disorders (65 patients total) were collected, and the samples were analyzed in the Department of Biochemistry at the University of Kuopio. The methodology used is described in detail in the presentation of Dr. Kuronen in this Symposium.

Results: 12% (3 of 26 healthy controls; 8 male, 18 female, age 22-48 yrs) showed nano-positivity on serum culture. Similar percentage (14%, i.e. 1/7 controls) was observed when analyzed for nano-specific IgG, IgM, and culture IF-study. From patients, also skin biopsies were obtained from healthy and diseased skin. When combining all the different analysis results, psoriatics showed positivity in 11 of 13 patients (85%), patients with lichen ruber planus in 6 of 6 (100%), patients with nummular or other eczema in 6 of 6 patients (100%), and patients with urticaria and nonspecific pruritus in 8 of 9 patients (89%). The corresponding serum culture IF-positivities were 53%, 67%, 60% and 56%, respectively. Three of four patients with prurigo nodularis were culture-IF-positive.

Discussion: Nanobacteria are clearly associated in various inflammatory skin diseases, such as psoriasis, lichen ruber planus, nummular eczema and other nonspecific dermatitis, and also urticaria and nonspecific pruritus. From these results, it is not known whether nanobacteria have a role as primary or secondary factor in these diseases. A few patients studied that nanobacteria may have a role in various skin diseases, such as amyloidosis and prurigo nodularis (that is a severe inflammatory nodular itchy dermatosis). The presence of nanobacteria were observed in a few patients with skin diseases such as scleroderma and lichen sclerosus, pyoderma gangrenosum and Sezary syndrome (a rare malignant T cell lymphoma). These patients were too few to draw a definite conclusion. More studies are needed to elucidate the role on nanobacteria in these diseases.