

〈一般論文〉

## ヒトの慢性的な日光暴露部皮膚組織に見られたカルシウム集積

山田勝久\*, 柴田雄次, 山本 樹, 野村道康

### The Calcium Accumulation Observed on the Skin Tissue Chronically Exposed by the Sun

Katsuhisa YAMADA\*, Yuji SHIBATA, Tatsuki YAMAMOTO, Michiyasu NOMURA

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#### Abstract

In the study of photoaging, sun exposure is a target of interest. We can see there are specific changes in photoaging skin. In our previous study, using normal human dermal fibroblasts (NHDF) aged by repeated passage, UVA irradiation against NHDF caused also calcium accumulation and calcification as well as protein carbonylation induced from oxidative damage. Furthermore, we reported that the expression of PiT-1 and OPN, which are well known as osteogenesis markers of human aortic smooth muscle cells, increased in UVA-irradiated NHDF. In this study, we observed the dermis of several sections of human skin tissue that were chronically exposed to the sun and those that were not. As a result, the expression of protein carbonylation due to oxidative stress appeared universally in human dermis chronically exposed to the sun. In addition, the expression of the type I collagen and osteopontin as osteogenic markers were different in skin sections between chronically and non-chronically exposed to the sun. Furthermore, uniform calcium-ions accumulation and local calcification in the dermis were prominent only in aged human dermis among the human skin chronically exposed to the sun. Next, we observed two kinds of skin tissue, which were the back of the hand and the buttock; both obtained from the same human, age 46 years. As a result, it was suggested that there is calcium-ions accumulation in the dermis of the back of the hand that was exposed chronically to the sun.

From these results, it was suggested as a possibility that chronic sun exposure induces calcium-ions accumulation and chronological aging accelerates calcification in the human dermis.

**Key words:** calcium accumulation, calcification, human dermis, photoaging, sun exposure.