Lipoperoxidation and vitamin C status in psoriasis

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Oxidative stress is caused by an imbalance between the production of pro-oxidants and the capacity of a biological system to rapidly detoxify the free radicals, remove altered molecules and repair the resulted prejudice. Oxidative stress is not an affliction, a symptom or a syndrome, but a biochemical process generated and maintained by exogenous and endogenous factors. In this paper we quantified the level of pro-oxidants and antioxidants in patients with psoriasis vulgaris.

The urinary levels of lipid peroxides (expressed through the concentration of thiobarbituric acid reactive-substances-TBARs), creatinine and vitamin C were determined in 90 patients (40 patients with active psoriasis and 50 patients with remitted psoriasis) and 50 controls.

The level of vitamin C (mg/dL) was decreased in patients with psoriasis as compared to the controls (11.3 ± 6.8 versus 17.3 ± 10.4 , $p=0.099$) (Figure 1). Different values were also obtained between patients with active and remitted psoriasis (8.8 ± 3.7 versus 13.2 ± 8.7 , $p=0.062$). The level of lipid peroxides (ng TBARs/mg creatinine) presented considerable differences between patients with psoriasis and controls (14.7 ± 6.2 compared to 7.5 ± 3.1 , $p=0.016$) (Figure 2) and between active and remitted psoriasis (18.3 ± 8.2 compared to 11.5 ± 3.2 , $p=0.031$). A negative association between the concentration of vitamin C and the TBARs/ creatinine ratio was found through simple linear regression analysis in patients with active psoriasis ($r=-0.602$, $p=0.009$) and remitted psoriasis ($r=-0.266$, $p=0.047$).

The results of the study show that the level of reactive oxygen species dramatically decreases and physiological antioxidant mechanisms are inefficient in patients with psoriasis vulgaris. These findings reconfirm that oxidative stress has a destructive and pathogenic role in psoriasis.

Figure 1. The level of vitamin C in psoriasis patients versus controls

Figure 2. The level of lipid peroxides in psoriasis patients versus controls

References

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