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Comparison analysis of psychological and biochemical indices of chronic life stress

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The psychological and biochemical stress responses of healthy men and women were measured under the normal situation. Experimental subjects, who were cadets of the Korea Air Force Academy, were selected by the random sampling. Quantitative scaling of the psychological stress was obtained by life stress test(Cheon et al, 2000) and Minnesota Multiphasic Personality Inventory(MMPI). Salivary cortisol level, which is a biochemical index of stress level of individual, was measured by Enzyme-linked immunoassay(EIA) instead of the blood test which may cause unexpected stress. The mean(n=58) of salivary cortisol level at 7 am was 7.12 ng/ml. 2nd year cadets had significantly higher salivary cortisol than 3rd year cadets ($p<0.002$). Also 2nd year cadets had significantly lower white blood cells and red blood cells than 3rd year cadets ($p<0.02$, $p<0.03$, respectively). Salivary cortisol, which may be an index of chronic life stress of individual, correlates negatively with blood cells. Salivary cortisol level of individual was not correlated with the psychological life stress and MMPI indices in most subjects. However, quantitative scores of the psychological life stress and MMPI of individuals, who had more than 9 ng/ml salivary cortisol, exhibited higher correlation with salivary cortisol level. Herein we report that salivary cortisol may be a good index of chronic life stress of individuals, and psychological test based on self report may be not proper for chronic life stress test of individuals in normal situation. In certain cases, however psychological test based on self report may be proper tool for measuring relatively higher stress level.

Keyword : stress, MMPI, cortisol