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MODULATION of IMMUNOGLOBULIN G (IgG) and CORTISOL RESPONSES in BREATHING EXERCISE

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Abstract

Indonesians have various types of breathing exercise believed to be able to improve immunity and prevent illnesses, particularly those resulting from stress. This study was aimed to prove the presence of immunoglobulin G (IgG) and cortisol modulation resulting from breathing exercise. This experimental study used randomized pretest-posttest control group design. Total sample involved in this study, both in treatment and control group, was 15 males from SMU Mualimin Yogyakarta. Treatment, which was presenting as breathing exercise, comprising of stances, breathing, and concentration (dzikir) for 7 weeks, three times a week. Laboratory examination was carried out using ELISA. Data were analyzed with t test, using SPSS program for Windows, and a highly significant increase (p = 0.000) of IgG level in treatment group as much as 41.80 ng/ml, while control group had a decrease of 30.89 ng/ml. The analysis of cortisol level showed significant reduction (p = 0.010) in treatment group of 4.09 ng/ml and 2.17 ng/ml in control group. In conclusion, the increase of IgG level does result from breathing exercise. The reduction of cortisol level in breathing exercise was found in treatment group that employed breath control and dzikir, so that this group is more composed and relaxed as compared to control group. Relatively low cortisol level provides an opportunity to lymphocyte T to produce interleukin-2 that stimulates the activity of plasma cells to produce immunoglobulins, one of which is IgG. Therefore, cortisol reduction due to breathing exercise has positive effect on IgG increase, so that breathing exercise can be used as one alternative of cost-saving and effective exercise to enhance immunity by reducing cortisol level and increase immunoglobulin G.

Keyword : breathing, exercise, IgG, modulation, cortisol

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