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"A study on Stress, Depression and NK Cytotoxic Potential in Women with Recurrent Spontaneous Abortion"

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Abstract:

It has been recognized that acute and chronic stress has an impact on the immune system. Acute stress may have a stimulating effect on the immune system, while in the case of chronic stress specially depression, the immune system could be down-regulated. However, an association between depression and a higher number of circulating white blood cells with increased activity has been reported. Elevation in immune cell numbers and alteration in cytokine profiles are documented for women suffering sporadic spontaneous abortion with a high stress score. In spite of these contradictory results and to make a new approach in immunological (NK activity) as well as psychological parameters (stress/depression) in women suffering from recurrent spontaneous abortion (RSA) the present study was planned. Forty-five women with a history of RSA and a matched control group were participated in this study. A questionnaire for life events known as life change units (LCU) and the Beck Depression Inventory (BDI) outlines were used and the socio-psychological events were recorded after visiting and interview. Fresh peripheral blood lymphocytes were taken as a source of NK activity and K562 cell line were used as NK sensitive target. The experiments were performed and the cells were analyzed with a flow-cytometer. The stress and the depression scores were determined 245 ± 83.6 and 27.6 ± 8.8 for women with RSA and 224 ± 79.6 and 19.4 ± 7.1 for non-RSA group respectively. There was an association between life stress scores and depression scores with $r=0.65$ and $P=0.000$ for RSA women. A correlation with $r = -0.34$ and $P = 0.02$ was found between depression scores and NK cytotoxicity. The Pearson correlation test showed a lack of relationship between high stress score and NK activity with the $r=0.011$ and $P=0.95$, but $r= -0.30$ and $P=0.072$ was obtained for high depression scores and NK cytotoxicity. Therefore, it could be suggested that in the case of women with a history of recurrent spontaneous abortion, modulation for immunological parameters (i.e immunotherapy) concurrently with managing psychological aspects (stress/depression) could be modified for the benefit of the patients.

Keywords:

Cytotoxicity, Immunologic, NK cells, Spontaneous abortion, Suppression

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