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Correlations Between Psychological Stressor and Severe Preeclampsia (SPE)

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Abstract

Pregnancy with severe pre-eclampsia may result from various types of stress, including psychological stress. Mechanism of psychological stressor that results in severe preeclampsia is unknown. The objective of this study was to disclose the mechanism from psychological stressor to severe preeclampsia. Results of homogeneous test to maternal age, age of pregnancy, maternal body weight dan laboratory data revealed no difference between S+ group and SPE+ group, S- group and SPE- group, and S+SPE+group and S-SPE- group. Cortisol levels in S+ group and SPE+ group were not different (p = 0.167), so they were rendered to become one group of S+SPE+. Cortisol levels in group S- and SPE- were also not different (p = 0.343), therefore they were also rendered to be one group of S-SPE-. Biological data from S+SPE+ group and S-SPE- group was multivariately different (p = 0.0001). Biological data in S+SPE+ group and S-SPE- group revealed that the discriminator was cortisol, while IgG was not revealed. This indicated that SPE had a high cortisol level. Conceptual framework assisted with discriminator pattern revealed that the occurrence of SPE from psychological stressor is as follows: psychological stressor affects the hypothalamus to release orictotrophic releasing factor (CRF). The addition of CRF stimulates anterior pituitary gland that releases adenocorticotrophic hormone (ACTH), inducing adrenal cortex to release cortisol. Psychological stressor affecting the hypothalamus through autonomous nerve may enhance adrenal medulla to release cathecolamine, which may inhibit the function of cortisol in monocyte. Monocyte/antigen presenting cells may affect Th to differentiate to become Th1 cell and Th2 cell. Th1 cell will also be inhibited, resulting in the inhibition of IFN gamma and IgG-produced B-cell. In conclusion, SPE mechanism due to psychological stressor can be explained by psychoneuroimmunological approach.

Keyword : psychoneuroimmunology, psychological, stressor, SPE,

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