Estimating efficacy of AHCC as immune therapy for patients diagnosed with pharmacoresistant epilepsy

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[Introduction] Recent decades let us to witness much evidence of interaction between epilepsy and immunologic disorders. Survey has manifested interconnection between mental health and immune homeostasis. Clinical syndromes of secondary immunodeficiency are in 70-80% cases revealed in groups of mental patients with various severity levels. Immunologic mechanisms may play a significant role in integrated theory of epilepsy, so further immunologic research may help in diagnostication of this disease. Immune disorder is a favorable background for entire range of pathologies, which is confirmed with mentioned below immune-associated diseases. Infectious diseases such as ARVI, ENT diseases, urinary tract infections and herpetic infections often attack patients with epilepsy. Positive effect of immune correcting drugs in treatment of psychoneurological diseases including epilepsy has been reported already; mentioned drugs are steroid hormones, immunoglobuline, thymalinum, T-activin, cycloferon, S-100 proproten, azoximer bromide.

[Aim] To examine clinical neuroimmune disorders of patients diagnosed with pharmacoresistant epilepsy, to estimate immune role in pathogenesis of the disease and efficacy of immune therapy, AHCC supplement, in particular.

[Methods] Several children with unmoderate verified resistant epilepsy were examined with clinico-paraclinic methods. Immunologic methods included prelaboratory examination aimed at revealing clinical syndromes of secondary immunodeficiency and laboratory examination with the purpose to identify multiple defects in the immune system. Immunologic examination was performed according to standard methods. In order to determine immune status there were measured quantitative and functional indicators: 1) percentage of T- and B-lymphocytes in peripheral blood (total number of lymphocytes, percentage and absolute number of mature T-cells $CD3^+$, two basic subpopulations helpers $CD4^+$ and killers-suppressors $CD8^+$; B-lymphocytes $CD20^+$; immunoregulatory balance between $CD4^+$ and $CD8^+$, and 2) concentration of serum immunoglobulin A, G, and M (IgA, IgG, and IgM). All patients received combined treatment including baseline antiepileptic and immune therapy AHCC - 2 *i.d.* during one month.

[Discussion] Immune status assessment elicited that children with resistant epilepsy had decrease of mature T-lymphocytes ($CD3^+$) and T-cells subset imbalance. Amount of $CD3^+$ T-lymphocytes in epilepsy group was $42.42 \pm 14.65\%$, which is 82.8% of average rate. Amount of $CD4^+$ T-lymphocytes was 71.6%, and cytotoxic $CD8^+$ was 112.7%. $CD4^+/CD8^+$ lymphocytes subsets distribution changed, so that immunoregulatory balance was 1.28 ± 0.55, which was 58.6% of average rate. After AHCC intake patients had positive quantity changes of peripheral t-cell pool ($CD3^+$), T-helpers amount increase ($CD4^+$) and 1.4 times more increase of T-suppressors/killers ($CD8^+$-lymphocytes). Due to $CD4^+$ lymphocytes subset, current changes moved up immunoregulatory balance ($CD4^+/CD8^+$). Thirty-five percent of clinical changes displayed frequency and intensity reduction of epileptic seizures, and other patients had somatic health status and physiological functions improved.

[Conclusion] Data mentioned before demonstrate that patients with resistant epilepsy have significant neuroimmune disorders. AHCC immunotherapy improves immune status by increasing amount of T-lymphocytes, regulates subset balance, and activates phagocytes and humoral function. In addition, it decreases neuroimmunization by regulating amount of serum immunoglobulins. Such effect indicates reverse of autoimmune process which has pathobiological significance in epileptogenesis.