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Approach for risk-free glucocorticoids

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Abstract

Glucocorticoid (GC) preparations are used in medicine for more than 70 years as the most powerful anti-inflammatory drugs, possessing also anti-allergic, immunosuppressive, and antitoxic properties. However, the administration of these unique preparations is associated with severe adverse effects and difficulty and sometimes impossibility of their withdrawal. These adverse effects are manifestations of hormonal features of GC preparations. For reducing the risk associated with GC therapy two approaches are used: 1) synthesis of GC preparations with the improved therapeutical properties, and 2) the careful choosing patients to be treated with GCs, accurate decreasing the dose, medicamentous preventing the adverse effects. However, the problem of adverse effects still exists. GC hormones (and GC preparations!) are directly or indirectly participate in regulation of virtually all metabolic reactions, and this made it possible to propose the third approach: to take into account just the hormonal feature of GC preparations for optimizing their dose and regimen. The hepatic enzyme tyrosine aminotransferase (TAT) is the well-known example of the regulatory action of GCs. The TAT activity determines the blood level of tyrosine. Thus, blood tyrosine may be used for monitoring GC therapy. This proposal is based on the literature data of tyrosine metabolism and is supported by own observations in systemic lupus erythematosus, bronchial asthma, congenital adrenal hyperplasia in children, and also by experiment with adrenalectomy in rats.

Biography

Irma Th. Rass born in 1934 in Moscow. Her parents were biologists, graduates of Moscow State University (MSU). Irma also graduated the Biological Faculty of MSU in 1953. Postgraduated 1965 at the Institute of Development Biology, the USSR Academy of Sciences and became PhD In 1968 she became a research worker at the First Moscow Medical Institute, Clinic of Therapy and Occupational Diseases, where she was offered to deal with the problem of systemic lupus erythematosus. Disorders in tyrosine metabolism seemed to her the easiest approach to the problem of SLE. She was the first to compare the therapeutic effect of glucocorticoid preparations with their regulatory action on tyrosine metabolism. She proposed an idea that blood tyrosine could be index of tissue provision with glucocorticoids and confirmed this idea at the replacement therapy and experimentally. She was forced to leave the Clinic and in 1978 entered as a senior researcher in the Institute of Biological Testing of Chemical Compounds.

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