

A concise survey of L. Dérer's work on biorhythmicity

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Portrait of L. Dérer painted by Ján Mudroch 1957 (detail)

Professor Ladislav Dérer M.D. (1897–1960), head of the Department of Internal medicine, Faculty of Medicine, Komensky University, Bratislava, devoted the last 15 years of his scientific career to the study of manifestations of periodic phenomena in internal medicine.

His attention to these phenomena was attired by the frequently observed periodicity in blood leucocyte counts after application of tris-chloroethylamine to patients suffering from chronic leukaemia. A single dose (0,1 mg/kg body weight), or daily repeated injections (2x0,01 mg/kg) during a week or for ten days, resulted in a moderate decrease of leucocyte counts occurring in waves with a periodicity of approximately six days. This was observed most often in cases of chronic myeloid leukaemia, less often in lymphoid forms. The phases of leukocyte decrease were often reflected also in increase of uric acid excretion. Further observations revealed the same phenomenon after X-ray irradiation of the spleen at a daily rate of 300 r for three consecutive days and also after a single dose of 259 units of adrenocorticotrophic hormone. However, a drastic treatment with high doses of active agents resulting in rapid decreases of leukocyte counts and uric acid excretion prevented a manifestation of this periodicity [1, 2].

He observed cases of similar ways of reactions in individuals without any hematologic disorders to other, not cytostatic agents, affecting diverse physiological variables, e.g. prothrombin level, eosinophile count, oxycorticoid excretion, protein iodine blood level, or blood pressure. He concluded, that this phenomenon represents a neither too restricted, nor rare mode of human reactions to various insults [3].

His last activities were devoted to phylo- and ontogenetic considerations when searching for stem cells of prolonged proliferative generation lines [4–6]. He came to the conviction that the demonstrated objective rhythm of white blood cell counts reflects proliferative action in the haemopoetic tissue. In this way he extended clinical physiology to clinical biology.

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