

Ferrokinetics (I)

On the Index of Effective Erythropoiesis

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For the evaluation of effective erythropoiesis, percent red cell radioiron utilization (% RCU), red cell iron turnover (RCIT), which is obtained by multiplying $\frac{\% \text{RCU}}{100}$ with plasma iron turnover rate (PIT), and reticulocyte count have been used. However there has been no index on the rate of effective erythropoiesis.

This is to report the amount and rate of effective erythropoiesis.

The red cell iron renewal (RCIR), the amount of effective erythropoiesis, was obtained by dividing total hemoglobin iron (HbFe) with mean red

cell life span determined by using DF^{32}P method. The effective erythropoiesis rate was obtained by dividing RCIR with PIT. The difference between RCIT and RCIR is due to the additional fixation of radioiron reflex from storage beyond the rate of HbFe to the total body iron.

Therefore, RCIT is gross, and RCIR is net red cell iron turnover in the equilibrium of red cell production and destruction.

The effective erythropoiesis rate was lowest (28 %) in hemolytic syndrome, low (46 %) in aplastic anemia, high (63 %) in iron deficiency anemia, and highest (78 %) in polycythemia vera.

Ferrokinetics (II)

The Relationship Between Storage Iron and Percent Red Cell Radioiron Utilization as an Index of Effective Erythropoiesis

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Although percent radioiron utilization (% RCU) is thought as an important index of effective erythropoiesis, it is largely influenced by the

amount of storage iron. The decrease of % RCU by the increase of storage iron does not mean the ineffectiveness of erythropoiesis. To clarify the