However, minor degrees of excess size might escape detection unless 100% separation of reticulocytes is achieved. The best separation in normal blood with the technique used was 9% reticulocytes in the top layer and 1% in the bottom layer. (Control, Table I). Improved techniques for reticulocyte separation are needed to settle the point.

Summary. The size distribution of peripheral red blood cells of rats recovering from phenylhydrazine anemia is reported. Reticulocytes produced during the first burst of active erythroid regeneration are as much as twice the normal size; degree of macrocytosis is related to the severity of the anemia. The initial crop of oversized cells is replaced by successive crops of reticulocytes of more normal size. It is suggested that separation of reticulocytes by centrifugation depends on their density, which is determined primarily by the MCHC.

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Comparative Effects of Colchicine and Vincaleukoblastine on Bone Marrow Mitotic Activity in Syrian Hamster.* (26786)

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Orsini and Pansky(1) reported the Syrian hamster to be resistant to colchicine. They were unable to observe metaphase arrest in dividing cells in animals treated with doses of colchicine varying from 1 mg to 20 mg/kg of body weight. Since this original report by Orsini and Pansky, the Syrian hamster has been generally accepted as being resistant to colchicine(2).

Recently an alkaloid derived from *Vinca Rosea Linn.,* Vincaleukoblastine, was found to possess, like colchicine, the property of arresting cell mitosis at the metaphase stage (stathmokinetic effect)(3,4,5).

The present study was undertaken to study the comparative effects of Vincaleukoblastine and colchicine in Syrian hamsters.

Methods. Fifty Syrian hamsters† of both sexes, weighing 80-130 g, were used in these experiments. Three groups of 10 animals each were injected intraperitoneally with 1.2 mg/kg, 2.4 mg/kg and 7.2 mg/kg, respectively, of colchicine. They were sacrificed 4 hours after treatment. A fourth group of 10 hamsters was injected with 1 mg/kg of Vincaleukoblastine and also sacrificed after a period of 4 hours. A fifth group of 10 hamsters was used as a control.

Bone marrow from the femurs of all animals was collected and fixed in 70% methylalcohol. Preparations for microscopic study were made according to the Feulgen squash method. Scoring of mitotic figures was done by counting 2000 cells in each preparation. Survival time after intraperitoneal treatment with high doses of colchicine and Vincaleukoblastine was determined in AKR mice, WR rats, and Syrian hamsters.

Results. The results of these experiments, reported in Tables I, II, and III, indicated that, although hamsters seemed to be resistant to the general toxic effects produced by colchicine, as demonstrated by survival time, their bone marrows were only partially resistant to the stathmokinetic effect of this alkaloid. Colchicine, in a dosage of 1.2 mg/kg,

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TABLE I. Bone Marrow Mitotic Index in the Normal Syrian Hamster before and after Treatment with Colchicine and Vincaleukoblastine.

No. of animals	Compound	Dosage, mg/kg	Mitotic index, %
10	—	—	13.7
10	Colchicine	1.2	15.1
10	"	2.4	38.35
10	"	7.2	38.30
10	Vincaleukoblastine	1.0	98.2

TABLE II. Survival after a Single Injection of Colchicine.

Animal	No.	Dosage, mg/kg	Survival, days 2	5	30
Mouse	5	9.6	0	0	0
Rat	5	9.6	1	1	0
Hamster	5	9.6	5	4	4
Mouse	10	19.2	0	0	0
Rat	10	19.2	0	0	0
Hamster	20	19.2	19	18	18

TABLE III. Survival after a Single Injection of Vincaleukoblastine.

Animal	No.	Dosage, mg/kg	Survival, days 2	5	30
Mouse	5	5	5	3	3
Rat	5	5	5	2	1
Hamster	5	5	5	4	2

which produced complete metaphase arrest of all dividing cells in the mouse and rat, was practically ineffective in the hamster. However, when dosage was raised to 2.4 mg/kg, an accumulation of arrested metaphases was observed and the mitotic index increased to *circa* 3 times that of the control. There was no apparent further increase in this stathmokinetic effect by increasing the dose of colchicine from 2.4 to 7.2 mg/kg. Moreover, even at a dose level of 7.2 mg/kg, colchicine did not produce metaphase arrest in all of the bone marrow cells, since some post-metaphase figures were also present. On the other hand, Vincaleukoblastine produced complete metaphase arrest. The number of accumulated metaphases in hamsters treated with Vincaleukoblastine was very high (Table I) and no post-metaphase mitotic figures were observed.

Conclusions. The data presented here indicate: (1) the Syrian hamster is equally as sensitive to the stathmokinetic effect of Vincaleukoblastine as are the mouse and rat; (2) Syrian hamster bone marrow cells, *in vivo*, are only partially resistant to colchicine.

Summary. The effect of Vincaleukoblastine and colchicine on mitotic activity of bone marrow cells was studied in the Syrian hamster. Vincaleukoblastine at a dosage of 1 mg/kg, administered intraperitoneally, caused metaphase arrest of all dividing cells. Colchicine, at a dosage of 1.2 mg/kg, which caused effective metaphase arrest of dividing cells in mice, rats, and other animals, did not demonstrate stathmokinetic effect in hamsters. A single injection of 2.4 mg/kg of colchicine caused partial metaphase arrest. There was no apparent increase in the stathmokinetic effect by increasing the dose of colchicine from 2.4 to 7.2 mg/kg.

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