

TABLE I.

Patient	Day of cycle	Blood estrogen in rat units per 100 cc whole blood				
		8 a.m.	12 m.	4 p.m.	8 p.m.	Midnight
G	26	350	500	320	500	300
A	23	250	250	250	300	250
K	1	250	250	250	250	250
"	16	350	300	300	300	300
S	*	300	300	300	350	300

*Eleven days after operation for ectopic gestation.

amount of estrogen varied during the course of the day in 4 out of 5 cases, the difference may be considered as significant (over 150 rat units per 100 cc of whole blood) in only one instance. A difference of 50 units was observed on 3 occasions but it is doubtful that this change is of importance. There was no consistency in the time of day or night at which the rises occurred.

Summary. The estrogenic hormone content of the blood of women was determined at 4-hour intervals during the course of one day in 5 instances. A significant diurnal rise was noted once, a minor increase in 3 cases, and a constant level was found in one case.

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Concentration of Estrogenic Hormones in Blood Serum and Blood Cells.*

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Since the work of Kemp and Bjergaard¹ it has been accepted that the estrogens in the blood of pregnant women are about equally divided between the plasma and the cells. These assays, however, were conducted following chemical extraction, and a very different result has been found in non-pregnant individuals by using dried blood for direct examination.

In this study the serum and blood cells were separated by centrifugation and then dried by placing in cellophane tubes on which an

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¹ Kemp, T., and Bjergaard, K. P., *Compt. rend. Soc. de Biol.*, 1932, **111**, 329.

TABLE I.

Specimen	Diagnosis	Day of cycle	Rat units of estrogen per 100 cc	
			Serum	Blood cells
B 3332	Dysmenorrhea	20	200	500
B 3343	"	2	200	400
B 3355	"	9	300	500
B 3367	"	16	300	600
B 3371	"	11	220	900
B 3384	"	21	250	400
B 3393	"	1	200	700
B 3406	"	12	220	500
B 3409	Sterility	13	220	500
	"	21	200	400
	"	28	200	400
	Polymenorrhea	11	180	400
	"	18	250	450
	"	25	200	400
B 3303	Amenorrhea		200	500
B 3317	"		280	600
B 3335	"		250	600
B 3307	Menopause		200	500
B 3316	"		300	600
B 3327	"		150	400

electric fan was allowed to play for a few hours.² The resultant powders were then compressed into small pellets which could be inserted directly into the vaginae of standardized adult spayed rats. Three animals were used for each dose level, and the results were based on vaginal smears made 48 and 60 hours after the introduction of the pellets.

The results of 20 observations are given in Table I, which shows that when bioassays are made in this manner the cells contain from 2 to 4 times as much estrogen per unit volume as the blood serum.

Summary. The blood serum and blood cells of a group of 20 non-pregnant women were examined for their estrogenic hormone content by the intravaginal application of pellets made from desiccated material. The blood cells were found to contain two or more times as many rat units per unit volume as the blood serum.

² Thalhimer, W., *PROC. SOC. EXP. BIOL. AND MED.*, 1938, **37**, 639.