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Estimation of Anterior Pituitary-like Hormone in Cord Blood.

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In order to study the presence or absence of the anterior pituitary-like hormone in the fetal and placental circulations, and perhaps its effect on the fetal ovary determinations of the hormone were made upon the cord blood.

The blood specimens were obtained from the umbilical cords of 2 women immediately after the birth of the babies by severing the cords and allowing the blood from each of the cut ends to flow into separate vessels. The specimens obtained from the fetal side of the cut cords were considered to be fetal blood, and that from the maternal side, placental blood, or blood going from the mother to the fetus. The bloods thus obtained were allowed to clot and the serum only was used for the hormonal determinations. As relatively small quantities of serum could be obtained by this method, especially from the fetal side of the cord, the total quantities of serum obtained were injected. The immature rat was used as the test object, and a total of 4 rats were injected with the serum. In the first case of parturition 5 cc. of serum obtained from the placental end of the cut cord, and 5 cc. of serum obtained from the fetal end were injected into 2 immature rats respectively. In the second case 3 cc. of serum obtained from each end were injected on the same day.

The ovaries of the rats which received the placental blood serum in both the 5 cc. and 3 cc. quantities showed luteinized follicles (A.P.R. III). On the other hand, the ovaries of the rats which received the same quantities of serum from the fetal side of the cord (5 cc. and 3 cc. respectively) showed a negative response. Since 3 cc. of placental blood serum showed at least 1 R.U. of the anterior pituitary-like hormone, it is estimated that there are at least 165 R.U. per liter of blood entering the fetus during pregnancy. Aschheim and Zondek found 150 M.U. per liter. It is emphasized that only the "luteinizing" anterior pituitary-like factor was looked for. The Anterior Pituitary Reaction I was not considered positive. It is conceivable that if greater quantities of serum were used that a positive reaction may be demonstrable in the fetal

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blood. However, in the quantity here used (5 cc. of serum) a negative reaction was obtained.

It is evident from the reactions obtained that the anterior pituitary-like hormone enters the fetal circulation through the cord but does not return in same concentration. In corroboration, Wislocki and Snyder[1] have demonstrated that the hormone fails to pass from the fetal circulation to the mother. It seems likely that it is fixed or destroyed in the fetal tissues.

To determine whether or not the hormone is stored in the liver, 108 gm. of liver obtained from a fetus dying *in utero* was extracted by means of 60% acid alcohol and the extract injected into[2] immature rats. The equivalent of 54 gm. (½ the total quantity obtained) was negative on 2 occasions. Apparently the hormone is not stored in the liver.

Examination of fetal ovaries fails to show any evidence of follicle maturation or luteinization. The uterus also shows no variation from the quiescent state. The hormone although entering the fetal circulation evidently does not act upon these structures. Further investigation is necessary to determine its fate in the fetus.

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Specificity of Enhancing Materials from Mammalian Tumors.

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That growth promoting substances are present in transplanted tumors has been known for a long time. But that they can exercise a profound influence over the metastatic phase of malignancy, that their effects in sensitizing the host to a malignant growth can be more or less permanent, or that they have species and tissue limitations in their activity is only now being demonstrated.[1] Thus, a filterable material from the Brown-Pearce rabbit tumor has been found to enhance every observed phase of the growth of this tumor, both local and metastatic. A species limitation has been noted in

[1] Wislocki and Snyder, PROC. SOC. EXP. BIOL. AND MED., 1932, **30**, 196.

[2] Zondek, B., *Hormone d. Ovariums u. des. Hypophysenvorderlappens.* Julius Springer, 1931, 200.

[1] Casey, A. E., PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 869; 1933, **30**, 674, 1025.