showing intermittence are well filled.

For these reasons, we *conclude* that no blood (and ink) was flowing through the "empty" glomeruli during the time (5 to 10 sec.) while the injection of ink was being made. In other words, the "empty" glomeruli were not functioning or more precisely blood was not flowing through them as it was in those glomeruli which contain the ink.

Attention is drawn to the fact that the functioning glomeruli in the 9 kidneys showing intermittence seem to be predominantly though not exclusively of the juxta-medullary type.

Summary. A new direct visual technic for studying the vascular supply of the rat kidney is described. Photographs of kidneys which demonstrate glomerular intermittence are presented.

The valuable technical assistance of Mr. Ernest Whitcomb is gratefully acknowledged, as well as the financial assistance of the Research Committee of the Geo. Wash. Univ. which partially defrayed the cost of this work.

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Received October 29, 1952. P.S.E.B.M., 1952, v81.

Effect of Estrogens on Serum Precipitable Iodine.* (19948)

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It is known that the serum precipitable iodine (SPI), a reliable index of the level of the circulating thyroid hormone, increases during normal pregnancy(1). The rise occurs early in pregnancy, is maintained until after delivery, and is not associated with clinical hyperthyroidism(2). The cause of the increase in the level of the circulating thyroid hormone has not been explained.

Some instances of abortion or threatened abortion in early pregnancy have been reported to be associated with levels of the SPI below that found in normal pregnancy and the administration of exogenous thyroid has been advocated in these cases(1,2). On the other hand the Smiths(3) and others have suggested the use of estrogens in cases of habitual abortion. In other studies the pregnant state appeared partially to ameliorate clinical hyperthyroidism(4). Because of these observations and because estrogens appear to depress the respiration of tissue homogenates(5) it seemed pertinent to investigate the influence of estrogens on the SPI.

Materials and methods. Sixteen patients (5 women and 11 men) whose ages ranged from 18 to 74 years were given either diethylstilbestrol† (14 patients) or Premarin† (2 patients). None was acutely ill although the majority were chronically ill with carcinoma of the breast or prostate. From 20 to 100 mg of diethylstilbestrol per day and 5 mg of Premarin per day were administered in divided doses. The SPI was determined by the method of Barker(6) as modified by Danowski and associates(7). Our normal range, obtained on 63 individuals, varies from 3.5 to 7.3 μg per 100 ml of blood (mean 5.2 μg) and is

* This work was supported in part by a grant from the U. S. Public Health Service.

† Stilbestrol was kindly supplied by Mr. Robert Thompson and Mr. J. W. Schma of the Upjohn Co. The Premarin (conjugated estrogens-equine) was supplied by Dr. J. S. Scanlon of Ayerst, McKenna and Harrison.

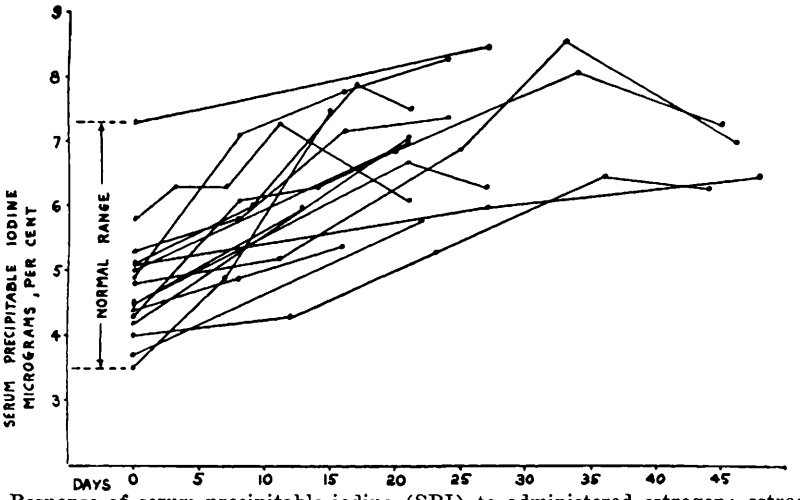

FIG. 1. Response of serum precipitable iodine (SPI) to administered estrogen; estrogen was begun on day No. 1.

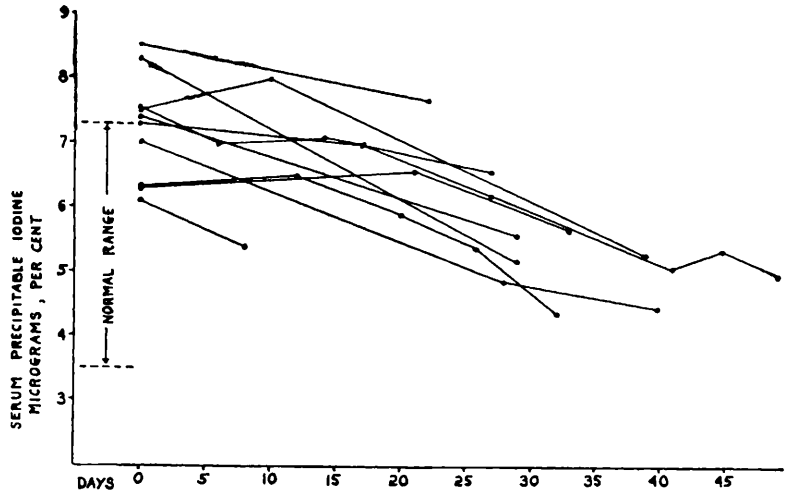

FIG. 2. Response of serum precipitable iodine (SPI) when previous therapy with estrogen was discontinued.

practically identical with that reported by others(8). In our experience and others(7,8) the SPI remains relatively constant in the same individual from time to time; variations greater than 1.0 microgram are unusual.

Results and comment. The data in Fig. 1 demonstrate that the SPI rose in all instances when men or women were under the influence of large amounts of estrogen. The minimal amount of estrogen required to elicit a significant response or the amount of estrogen necessary to cause a maximal rise in SPI could not be determined from these studies. In those instances where the administration of estrogen was continued beyond two weeks a "leveling off" in the increments was usually noted by the third or fourth week. None of the patients exhibited evidences of hyperthyroidism although in several instances the SPI was clearly in the hyperthyroid range. That the rise in the SPI is probably maintained with continued administration of estrogen is suggested by the finding of a concentration of 10 μg % in a woman (not included in the figures) who had been on continuous therapy with stilbestrol for 3 months. She was clinically euthyroid and had a normal basal metabolic rate.

To substantiate further the observation that the SPI is increased by estrogen, therapy was discontinued in 10 individuals and the course of the SPI followed for varying intervals thereafter. In all instances the SPI gradually fell toward the normal control range (Fig. 2). Although the data are limited it appeared that at least four weeks were required for maximal fall.

These findings suggest the possibility that the physiologic rise of the SPI of normal pregnancy is a phenomenon secondary to increased elaboration of estrogen since early and continued elaboration of large amounts of estrogen characterizes normal pregnancy. The data may also indicate that the tolerance for thyroid hormone is increased by estrogen. The clinical implications of these findings and the elucidation of the mechanisms involved in the response, remain to be evaluated.

Summary. The serum precipitable iodine (SPI), an index of the level of the circulating thyroid hormone, rises in men or women during the administration of estrogen and falls to control values when the estrogen is discontinued.

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Received October 30, 1952. P.S.E.B.M., 1952, v81.

Quantitative Study of Arthus Reaction and of Cutaneous Anaphylaxis Induced Passively in the Rat.* (19949)

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The severity of the Arthus reaction in relation to the amount of antibody has been thoroughly studied by Fischel and Kabat in the rabbit(1), as well as by Benacerraf and Kabat in the guinea pig(2). No information is available, however, concerning the amounts of antibody required to induce the Arthus phenomenon in the rat. Kenton(3) was able to provoke direct Arthus reactions in the rat by the intraperitoneal injection of a large amount (5 ml) of rabbit antiovalbumin serum followed 3 hours later by the intracutaneous injection of the specific antigen. The antiserum was assayed by the collodion particle method and had a titer of 1:5000, but was not analysed for its antibody nitrogen content. The present investigation was undertaken to correlate the severity of passive direct or reverse Arthus reactions in the rat with the amounts of antibody required for their production. It also deals with the production of passive cutaneous anaphylaxis, as revealed by the intravenous injection of a mixture of antigen and a dye ("Geigy Blue 536") in animals previously sensitized by the intradermal injection of antibody. Circular blue spots develop at the sensitized sites as a consequence of the release of histamine which results from the interaction of antigen and cell-fixed antibody. As shown in this laboratory(4), the latter reaction is fundamentally different in mechanism from the Arthus phenomenon.

* This investigation was conducted at the Dept. of Immunology, Instituto Biológico, São Paulo, Brazil, and aided in part by a grant from the National Research Council of the Brazilian government.

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