11079 P

Study of the Effect of Specific Kidney Antisera on the Normal Kidney.

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Pure albumin and pseudoglobulin were prepared from dog's blood according to the method of Hektoen and Welker.[1] Potent precipitins were prepared for the above antigens according to the method of Hektoen and Welker[2] and were used to determine the presence or absence of blood-proteins in the urine of dogs in subsequent experiments.

Four normal dogs with normal urines were exsanguinated; the blood was saved to obtain blood proteins, and the liver, brain, stomach, spleen, lung and kidneys were perfused with saline, and then thoroughly ground. A portion of kidney and all of the other organ-materials were used to prepare autolysates, and the remainder of the kidney-material was washed several times with more saline, fixed on aluminium cream and injected into rabbits for preparation of organ-antiserum according to the method of Spinka and Weichselbaum,[3] whereby blood-protein antibodies are eliminated without the necessity of absorption.

The kidney-antisera cross-reacted with liver- and brain-autolysates though to a definitely lower titer than with the specific antigen.

Healthy dogs with normal blood pressure and urine were injected intravenously with normal rabbit serum, a dog-kidney antiserum which had become attenuated, and a potent kidney-antiserum in doses of 1 cc per pound of body weight. Urines were examined for albumin, red blood cells, and casts, and by means of precipitin-tests for kidney-protein and dog-blood protein.

The injection of normal rabbit serum and attenuated kidney-antiserum produce no demonstrable changes. The injection of potent kidney-antiserum produced within one hour blood-pressure changes, appearance of kidney-proteins, red blood cells, and granular casts in the urine, and the microscopic pathological changes of extreme diffuse vascular dilatation, increase of Bowman's space, branching of glomeruli, tubular degeneration, and leukocytic infiltration of the entire kidney.

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1 Hektoen, L., and Welker, W. H., *J. Infect. Dis.*, 1924, **35**, 295.

2 Hektoen, L., and Welker, W. H., *J. Infect. Dis.*, 1933, **53**, 309.

3 Spinka, I., and Weichselbaum, P. K., *J. Chem. Soc.*, 1938, **38**, 447.

TABLE I.
Results of Intravenous Injection of Various Sera into Dogs.

	Normal Serum	Attenuated kidney-antisera	Potent kidney-antisera	Potent kidney-antisera
Blood pressure	No change	No change	Marked drop	Drop
Urine				
Albumin (Heat and acetic acid)	Negative	Negative	+++	+++
Microscopic				
Red blood cells	,,	,,	5-10/HPF	Packed
Casts	,,	,,	Negative	Occ. gran. cast
Precipitin-reactions for dog-blood protein	,,	,,	+	+
Dog-kidney protein	,,	,,	+	+
Necropsy findings				
Gross				
Capsule	Strips with ease	Strips with ease	Strips with ease	Strips with ease
Hemorrhage	None	None	None	Present
Microscopic				
Increased Bowman's space	Negative	Negative	Present	Present
Glomeruli	Normal	Normal	Branched	A few were obliterated
Congestion	Some	Some	Marked	Marked
Tubules	Cloudy swell.	Cloudy swell.	Gran. degen.	Gran. degen.
Leukocytes	Negative	Negative	Few	Many

These effects of kidney-antiserum free from antibodies for blood proteins suggest that its nephrotoxic effect is dependent on an antigen-antibody reaction and is not due to the primarily toxic influence of the animal serum or to the presence of antibodies to blood proteins as has been suggested by Pearce[4] and Smadel.[5]

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Preparation and Diagnostic Value of an Antiserum for Placental Protein.

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This investigation was undertaken first, because a study of the placenta might add to our meager knowledge of tissue antigens and second, a placental antiserum might afford a simple diagnostic test for pregnancy.

There are several reports on antisera for placental proteins. Kintse[1] prepared an antiserum for syncitial material, which contained a specific antiplacental precipitin. Lake[2] isolated nucleoprotein, globulin, albumin, and gelatin from human placenta and by immunization with these produced antisera that reacted with placental proteins and with human serum.

The method of Spinka and Weichselbaum,[3] utilized for the preparation of antisera, makes it possible to obtain directly, without relying on the use of absorptive procedures either *in vivo* or *in vitro,* sera free of antibodies for blood proteins.

Fresh human placentas were frozen and the cord and amniochorion were readily removed. The placentæ were ground in a meat-grinder and then washed with large volumes of chilled saline until snowy white. After further grinding with sand, the fine suspension was washed free of water-soluble protein, adsorbed on aluminium hydroxide cream, and injected intramuscularly into rabbits. After

4 Pearce, R. M., *Univ. Penn. Med. Bull.*, 1903-04, **16**, 217.

5 Smadel, J. E., *J. Exp. Med.*, 1936, **64**, 921.

1 Kintse, *Z. Geburtsch.*, 1912, **72**, 575.

2 Lake, *J. Infect. Dis.*, 1914, **14**, 385.

3 Spinka and Weichselbaum, PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 447.