fluorocardiogram of the border of the right ventricle, and a pressure tracing from the right ventricle are recorded. The fluorocardiogram presents a small presystolic negative wave (transmitted from the auricle); a deep *systolic collapse* (ventricular contraction); and a small, early-diastolic rebound. The pressure tracing presents no waves in diastole. Ventricular systole is accompanied by a *systolic plateau* with a higher initial peak.

The temporal relationship between the negative *ventricular wave* of the fluorocardiogram and the *systolic plateau* of the pressure tracing is precisely the same, allowing for a brief lag because of the fact that the ventricular wave of the fluorocardiogram starts with the beginning of ejection.

The tracing, recorded by means of the conventional catheter, presents a more rounded curve of intraventricular pressure (Fig. 2B).

Discussion. This study reveals a precise coincidence between the auricular and ventricular waves of the pressure tracing on the one hand and the fluorocardiographic waves on the other hand. The *positive wave* in the pressure tracing is due to the rise in pressure on contraction of the chamber while the *negative wave* in the fluorocardiogram is due to simultaneous decrease in volume of the chamber. Since the dog's heart shifts horizontally only very slightly within the chest, being more vertical than the human heart, experimental fluorocardiograms are nearly pure volume tracings. Thus a further proof is given of the accuracy of fluorocardiography in recording volume changes of the heart whenever the complicating elements of motion are absent or minimal.

Summary. Simultaneous fluorocardiograms of the right auricle and ventricle and tracings of intracardiac pressure reveal a precise temporal coincidence between the waves of the two records. Therefore, a further proof is given of the accuracy of fluorocardiography.

17050 P

Use of Radiopotassium for Detection of Minute Amounts of Desoxycorticosterone.*

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This communication is a report of a preliminary study on the use of radiopotassium for assay of adrenal cortical hormones. The fact that adrenalectomized rats tend to retain potassium, which may be reversed by the administration of adrenal cortical extracts or pure adrenal cortical steroids, is well known. With the use of radiopotassium as little as 10 μg of desoxycorticosterone may be detected in the adrenalectomized rat.

Animals, methods, materials. Albino rats obtained from Carworth Farms, Inc. were used for these studies. The animals were bilaterally adrenalectomized in one stage under ether anesthesia. Experiments were run 24 hours after adrenalectomy. The diet both before and after the operation consisted of Purina Fox chow without added sodium chloride.

The procedure consisted in the subcutaneous administration of the test material, desoxycorticosterone or desoxycorticosterone acetate,† contained in corn oil. The volume of oil was 0.25 cc. One hour after the administration of the steroid, potassium chloride

* Supported in part by grants from the Division of Research Grants and Fellowships of the National Institute of Health, U. S. Public Health Service, and from Sharp and Dohme, Inc.

† The desoxycorticosterone and desoxycorticosterone acetate were kindly supplied by Ciba Pharmaceutical Products, Inc.

TABLE I.
Influence of Desoxycorticosterone on Excretion of Potassium in Adrenalectomized Male Rats.
(Experiments run 24 hours after adrenalectomy.)

	Control		Experimental				
KCl admin. μg/g B.W.	Mean B.W., g ± S.E., (No.)	Mean K excretion, % ± S.E.	Desoxy-corticosterone admin., μg	Mean B.W. g ± S.E. (No.)	Mean K excretion, % ± S.E.	Change, %	t
20	126 ± 4 (11)	6.78 ± 1.30 —	32	126 ± 3 (11)	9.71 ± 2.0 —	+43	1.23
"	126 ± 4 (10)	6.78 ± 1.30 —	500 (Acetate)	126 ± 4 (10)	6.73 ± 1.40 —	+ 0	—
146	126 ± 3 (9)	4.90 ± 0.15 —	32	130 ± 5 (8)	6.34 ± 0.28 —	+29	4.24
"	126 ± 3 (9)	4.90 ± 0.15 —	500	127 ± 3 (10)	7.09 ± 0.28 —	+45	6.76
182	207 ± 6 (12)	2.98 ± 0.33 —	200 (Acetate)	210 ± 8 (12)	4.16 ± 0.24 —	+37	2.22
"	207 ± 6 (12)	2.98 ± 0.33 —	1000 (Acetate)	199 ± 8 (12)	4.51 ± 0.51 —	+51	2.40
280	135 ± 8 (10)	5.81 ± 0.37 —	32	131 ± 6 (10)	8.03 ± 0.39 —	+38	4.11
"	127 ± 3 (11)	5.22 ± 0.51 —	20	128 ± 3 (11)	8.81 ± 0.81 —	+69	3.49
"	131 ± 3 (11)	5.12 ± 0.82 —	20	132 ± 3 (11)	8.99 ± 0.51 —	+76	4.05
"	131 ± 3 (11)	5.12 ± 0.82 —	10	134 ± 2 (10)	9.90 ± 0.93 —	+93	3.72
"	131 ± 3 (11)	5.12 ± 0.82 —	1	125 ± 2 (10)	5.99 ± 0.77 —	+17	0.84

containing radiopotassium (half life 12.8 hours)‡ in the amount of 20 to 280 μg per gram of body weight was injected subcutaneously. The dose of potassium chloride was contained in 2 cc of solution. Urine was collected for 6 hours starting from the time of administration of the potassium chloride solution. The urine was dried and the concentration of radiopotassium in the residue determined as described previously for radiosodium.[1]

The amount of radiopotassium excreted in the urine during the six-hour period was related to the total radiopotassium administered and expressed in per cent. This was done for the results obtained on the experimental animals, as well as for the results obtained on oil injected controls run simultaneously. The significance of the difference in mean percentage excretion of radiopotassium was calculated.

Results. The results of the administration of varying amounts or hormone and potassium chloride to the adrenalectomized male rats are presented in Table I. When 20 μg of potassium chloride per gram of body weight was administered, no significant increment in potassium excretion was found for either 32 μg of desoxycorticosterone or 500 μg of the acetate. In the remaining experiments potassium chloride in the amounts of between 146 to 280 μg per gram of body weight was administered. In each experiment statistically significant increases in potassium excretion were observed. Thus, in one experiment when as little as 10 μg of the steroid was administered, an increase in potassium excretion of 93% was found. The t value was 3.72 indicating a P value of less than 0.01.

Conclusion. Thus far only desoxycorticosterone has been studied with respect to potassium metabolism in the adrenalectomized animal. Under similar conditions it has been previously demonstrated[1] that as little as one microgram produces a significant retention of sodium in the adrenalectomized rat. With radiopotassium 10 micrograms can be detec-

‡ The radiopotassium was supplied by the Monsanto Chemical Co., through the U. S. Atomic Energy Commission.

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ted. This method affords a convenient way to evaluate the relative activity of various adrenal cortical steroids and adrenotrophic hormone. Further studies are needed to define the method as a quantitative assay for adrenal cortical steroids.

Summary. By the use of radiopotassium in the adrenalectomized male rat, it is possible to detect as little as 10 μg of desoxycorticosterone. The method affords a convenient means of evaluating the relative activities of adrenal cortical steroids, as well as the influence of adrenotrophic hormone on potassium metabolism.

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Time of Appearance of Antibodies to Brain in the Human Receiving Anti-Rabies Vaccine.

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Recent reports[1-12] have shown that a disseminated type of encephalomyelitis can be produced in experimental animals by the injection of homologous and heterologous brain tissue, and that the lesions produced resemble the lesions found in the human demyelinating diseases including the encephalomyelitis following anti-rabies vaccination.

This has suggested the possibility that isoimmunization to brain tissue may be the mechanism responsible for the production of these diseases, and, in particular, of the encephalomyelitis following anti-rabies vaccination, since in the latter, the injection of heterologous brain tissue duplicates in many ways the actual experimental procedure which has been followed with the experimental animals.

It seemed of interest, therefore, to determine, in a preliminary study (of 5 cases) whether or not patients receiving anti-rabies vaccine actually develop antibrain antibodies in their sera. The procedure followed consisted of (1) the immunization of rabbits to determine the antigenicity of the brain extract used, and (2) the titration of the sera of patients receiving the anti-rabies vaccine, with this particular antigen.

Materials and methods. I. Preparation of antigens (Lewis[13]):

A. Suspension. The white matter from fresh human brain was dissected free of cortex, connective tissue and blood vessels, cut into thin slices and washed in running water for 30 minutes. It was then ground in a Waring blendor and made into a 30% saline suspension with 0.5% phenol added. This stock solution was used in the immunization of 4 rabbits.

B. Alcoholic extract. The same procedure

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