1. Pure cultures of the virulent organism regularly produce the disease.

2. Mice immunized with living avirulent or killed bacterial vaccines withstand massive challenge infection.

3. Infected mice can be cured by treatment with streptomycin 0.1 g/kg/day for 4 days. The Pasteurella is inhibited by 2-4 units streptomycin/cc of medium. If mixed with infectious lung suspensions streptomycin regularly prevents the lesions and disease due to this Pasteurella.†

4. Specific antisera protect against the disease after inoculation with infectious lung material or cultures.

A full account of this Pasteurella and its host-parasite relationships will be published later.

Summary. A latent pneumotropic Pasteurella was isolated from the lungs of healthy laboratory animals. In serial passage of lung material this organism was responsible for striking lung lesions, disease and death of Swiss mice. Streptomycin cured infected animals and could be used to prevent transfer of the latent Pasteurella in serial passage of lung material.

† The Gram-negative organism removed by streptomycin from passage lung material by McKee and Hale (*Science*, 1947, **105**, 41) may have been identical with the Pasteurella described here.

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Effect of Continued Desoxycorticosterone Administration in Hypertensive Subjects.*

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In hypertensive individuals, as compared to those with normal blood pressure, an accelerated pressor response has been observed following the subcutaneous administration of desoxycorticosterone acetate (DCA).[1] Studies are now reported concerning the effects of this steroid on the blood pressure, electrolyte and fluid balance when injected into patients with hypertensive vascular disease for longer periods.

Methods. Two men and 3 women with uncomplicated hypertensive vascular disease were observed on the wards of the Presbyterian Hospital. The criteria in selection of patients and the methods employed were identical to those previously described,[2] all subjects being maintained on a constant dietary, fluid and sodium chloride intake. Following a 3-week baseline period, DCA† was injected subcutaneously in doses of 10 mg daily for 30 days in 4 patients; a fifth received 20 mg daily for 50 days.

Results. The expected increase in weight and hemodilution which follow DCA injection were noted, together with slight reduction in urinary volume and evidence of sodium and chloride retention.[1-3] These alterations were, however, limited to the first 7-10 days of treatment, and the weight curve, hematocrit, serum protein concentration, urinary volume, 24-hour urine sodium and chloride values returned to baseline levels by the end of the second week. Serum volume, measured with the blue dye T.1824 at weekly intervals

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1 Perera, G. A. and Blood, D. W., *Ann. Int. Med.*, 1947, **27**, 401.

2 Perera, G. A. and Blood, D. W., *J. Clin. Invest.*, 1947, **26**, 1109.

† Desoxycorticosterone acetate (Doca) was supplied through the generosity of Dr. K. W. Thompson of Roche-Organon, Inc., Nutley, N. J.

3 Clinton, M., Jr., and Thorn, G. W., *Bull. Johns Hopkins Hosp.*, 1943, **72**, 255.

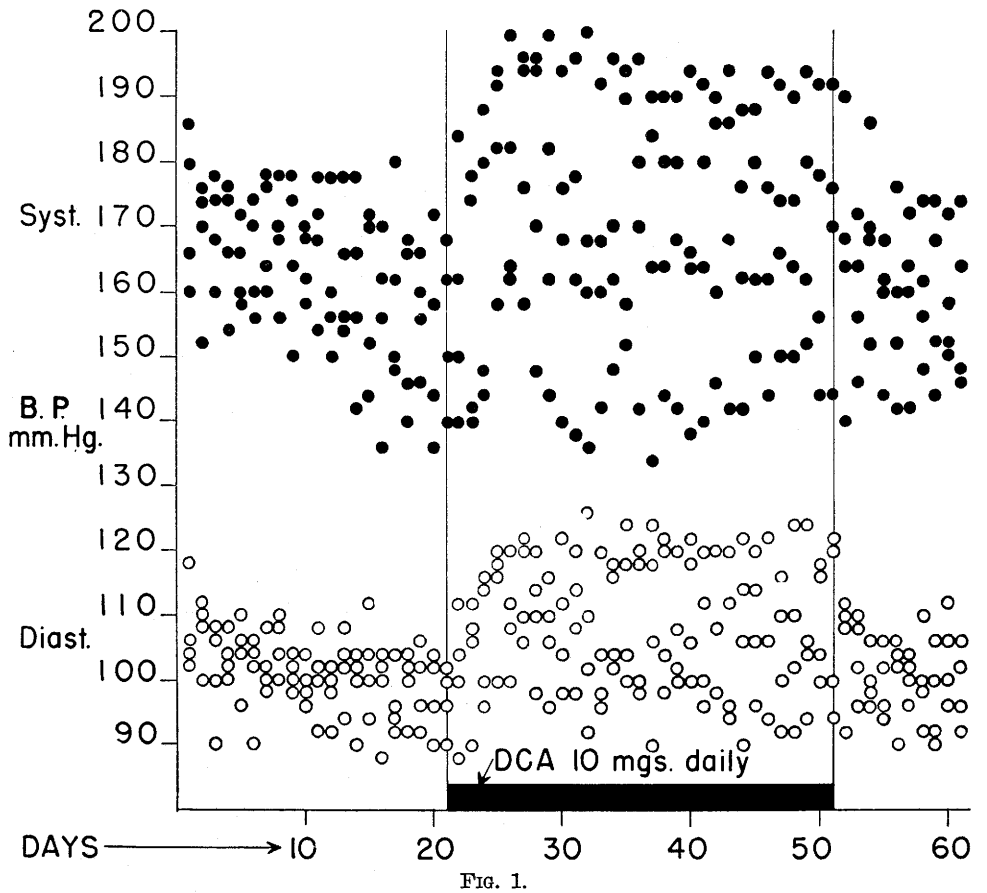

FIG. 1.
Effect of desoxycorticosterone acetate on the blood pressure of four patients with hypertensive vascular disease.

in one patient, rose from 2360 cc to 2530 cc after one week of DCA, then fell to 2320 cc by the end of the second week. Weekly determinations of serum carbon dioxide content revealed rising values with reciprocal decreases in chloride concentration. The urea nitrogen and sodium concentration of the serum showed no significant changes, but in all instances there was a progressive decline in serum potassium to values as low as 2.3 milliequivalents per liter (Table I). The increase in serum sodium concentration observed in experimental animals and in certain patients with Cushing's syndrome was not noted in this study. Repeated electrocardiograms and teleroentgenograms were unaltered.

Consistent small increases in "resting"[2] blood pressure were observed in all 5 cases during the first week of DCA administration. Blood pressure levels remained elevated in 3 patients until the drug was discontinued; but in one subject receiving 10 mg per day and in the subject receiving 20 mg per day the blood pressure returned to control values after a transitory rise (Fig. 1). The evidences of temporary salt and water retention were present in all, but disappeared whether or not blood pressure changes were sustained. The serum volume, determined in a second patient who exhibited a persistent increase in arterial tension, was unchanged before and at the close of DCA therapy.

Following the cessation of steroid injection, the serum potassium concentration returned to control values and the carbon dioxide content and chloride concentrations reversed their trends. There was no evidence of abnormal sodium, chloride or water loss in

these patients with a fixed fluid intake except during the second week of DCA treatment, at which time the initial salt and water retention was disappearing. This is in contrast to the excess diuresis and sodium loss previously reported in a non-hypertensive.[4]

Discussion. Although the rise in "resting" blood pressure, observed within a few days after the sustained administration of DCA in hypertensive subjects, has been confirmed, the increase may be temporary or may continue to be apparent throughout the period of daily drug administration. Salt and water retention does not appear to be the sole determining factor, as it is transitory even in the presence of persistent increases in blood pressure above baseline values.

TABLE I.

Serum electrolyte changes induced by DCA administration in 5 hypertensive patients.

Serum determination (meq/liter)	Start of DCA	End of DCA
CO_2 Content	26.6	29.7
	25.0	30.7
	29.7	31.2
	25.6	30.4
	33.0	38.8
Chloride	105.8	102.3
	104.6	99.6
	102.3	99.2
	104.0	99.4
	93.4	88.4
Sodium	136.7	140.1
	140.4	138.2
	137.9	139.5
	136.8	139.5
	140.4	140.2
Potassium	4.2	3.4
	4.3	3.2
	3.3	2.8
	4.8	2.9
	3.3	2.3

The fact that the pressor response to DCA is a matter of days rather than of hours suggests that a direct humoral effect is not responsible. This is further confirmed in preliminary studies following the single intravenous injection of desoxycorticosterone glucoside (Ciba) to hypertensive patients in doses from 5 to 30 mg; no significant change in blood pressure was observed with this preparation in 3 subjects over a 30-minute period of sphygmomanometric readings taken every minute (excluding the transitory elevation which may arise immediately after the introduction of the needle).[5]

Summary. The daily injection of DCA, in 5 patients with uncomplicated hypertensive vascular disease for periods of 30 days or more, produced a transitory rise in "resting" blood pressure in all instances, a sustained increase during the period of drug administration in but 3 of the 5 subjects.

The continued injection of DCA was associated with a progressive drop in serum potassium concentration, an increase in carbon dioxide content and a fall in chloride concentration. Salt and water retention, on the other hand, was observed only during the first 7-10 days of treatment, with reversal to control levels thereafter.

The pressor action of DCA does not appear to be due to a direct humoral mechanism dependent on its concentration in the circulation.

[4] Zierler, K. L., and Lilienthal, J. L., Jr., *Am. J. Med.*, 1948, **4**, 186.

[5] Goldman, M. L., and Schroeder, H. A., *Science*, 1948, **107**, 272.