Experimental Attempt to Produce L-E Syndrome (Arthritis) in Swine with Hydralazine.* (24875)

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Lansbury and Rogers(1) reported syndromes resembling lupus erythematosis in patients receiving hydralazine (Apresoline) for hypertension. Attempts to produce this phenomenon in laboratory animals have failed (2,3). Pigs often develop a rheumatoid-like arthritis, probably of infectious etiology(4). If a triggering mechanism exists for a rheumatoid state as suggested in humans, we thought it might be activated in the pig by Apresoline.

Materials and methods. Ten litter mates of Poland-China breed pigs were used. Two served as controls and remainder treated with Apresoline. Intramuscular injections of Apresoline, exceeding dosages employed in humans, were used, given daily and increased weekly (Table I). Injections were stopped at end of 9 weeks because of physical difficulties. In addition, powdered Apresoline was added to their daily supplemental feedings in Karo syrup and a commercial pellet (containing Aureomycin, vitamins and minerals). When too much Apresoline was added, they refused it, thus it was possible to maintain an increasing dosage within palatable limits. Table I summarizes amounts of drug given orally and intramuscularly in correlation with increase of weight and age of the animals. Two experimental animals were sacrificed at 60 days and remainder at the end of fourth month. L-E preps., sheep-cell and Latex-fixation agglutination tests, as well as histological examination of synovial membranes, kidney, hearts and adrenals were performed.

TABLE I. Age, Weight of and Amount of Apresoline Administered.

		Apresoline		
Time (wk)	Avg wt (lb)	I.M.	Oral	Daily total
		(mg)		
1	10– 15	40	100	140
2	15– 20	80	200	280
3	20– 25	100	400	500
4	25– 30	"	600	700
5	30– 35	200	800	1000
6	40– 50	400	1200	1600
7	50– 60	"	1600	2000
8	60– 70	"	2000	2400
9	70– 80	"	"	"
10–16	80–120		2400	"

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Results. Never did any of the animals appear to suffer any adverse effects from the drugs. No signs of stiffness or joint involvement appeared. None of the animals exhibited a positive L-E prep., or positive serological reaction. Histologically, no abnormalities were found compatible with either rheumatoid arthritis or any other collagen disease. The adrenal cortex exhibited a histological change as reported previously(5), but is not pertinent to this report. Inspection of the animals at time of sacrifice by the Veterinary Service of the University revealed no gross abnormalities to distinguish our experimental animals from others of comparable age and weight that were being slaughtered at the same time.

Discussion. This experiment may be criticized for its shortness. However, spontaneous occurrence of arthritis in pigs commonly occurs when treatment of our animals was stopped. Further, we may assume the amounts and method of administering the drug should have resulted in sufficient blood level to produce a toxic or triggering-effect if any was to be obtained. We suggest a species specificity for the Hydralazine Syndrome, since occurrence of this syndrome has only been reported in man.

Summary. Pigs were given Apresoline in massive dosages over a 4 month period. The attempt to produce the Hydralazine Syndrome in this species of animals was a failure. A suggestion is made that there may be a species specificity in the action of the drug.

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