17210. Effect of Dihydroergocornine on the Heart.*

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In a previous study it was shown that 0.5 mg of ergotamine tartrate or dihydroergotamine 45 injected intravenously would cause inverted T waves in patients with organic heart disease to revert to normal.[1] Seven of the 19 patients studied developed these significant electrocardiographic changes under the influence of these drugs and in 5 patients severe anginal pain occurred. This effect was attributed to a direct vasoconstrictor action of the ergotamine preparations on the coronary arteries. The experiments were repeated after blockade of the autonomic ganglia with tetraethylammonium chloride. Six of the 10 patients who received ergotamine tartrate in addition to tetraethylammonium chloride developed normalization of the previously inverted T waves. Changes in the repolarization of the heart muscle induced by the coronary vasoconstriction were assumed to be responsible for these electrocardiographic changes.[2]

The present study was undertaken to show the influence of dihydroergocornine (DHO 180) on the electrocardiogram of patients with left ventricular hypertrophy secondary to hypertension or aortitis.

Material and Method. Of the 24 patients examined 6 had a history of anginal pain and 5 had syphilitic aortitis with marked electrocardiographic changes so that involvement of the coronary ostia could be assumed to exist. All patients had the pattern of left ventricular hypertrophy with a depressed RS-T segment and inverted T waves in lead I and high R waves with similar changes of RS-T and T in lead CF_5.

After 30 minutes of bed-rest a control electrocardiogram and the blood pressure were recorded. Then 0.5 mg of dihydroergocornine was injected intravenously and the blood pressure readings and the electrocardiogram were repeated after 1, 5, 15, and 30 minutes. Standard leads as well as CF_2 and CF_5 were taken.

Results. In all cases the electrocardiogram remained unchanged throughout the period of investigation. The position of the RS-T segment did not change and the inversion of the T waves remained the same (Table I). The blood pressure fell in most patients and this fall seemed to be more pronounced the higher the initial blood pressure was.

The constancy of the electrocardiographic pattern was even more remarkable since 11 of the 24 patients were 65 years old or older. Anginal pain did not appear even in those patients who had suffered from it before admission. No untoward symptom or reaction developed in any of the 24 patients. Careful observation did not reveal any changes apart from the change in the blood pressure.

Discussion. This investigation was undertaken because of the report that dihydroergocornine does not produce vasoconstriction in the sympathectomized limb and represents the first pure sympathicolytic derivative of ergot.[3] It belongs to the group of ergot alkaloids which combine a peripheral sympathicolytic action on the receptors in the vessels with a central nervous effect which diminishes vascular tone.[4]

In view of the recommendation of this drug for the treatment of peripheral vascular diseases and certain forms of hypertension[4] it seemed desirable to ascertain whether it promotes anginal pain and whether it has a constrictor effect on the coronary arteries. Our studies indicate that such effects are absent and that in contrast to ergotamine tartrate and dihydroergotamine tartrate the drug is

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TABLE I.
Changes of Blood Pressure and Electrocardiogram Due to Dihydroergocornine.

No.	Age	Sex	Diagnosis	Blood pressure			Electrocardiogram	
				Initial	5 min.	30 min.	Before	After
1*	57	F	Luetic aortitis	150/40	126/32	134/40	Left ventricular hypertrophy	No changes
2	60	F	Hypertensive cardiovascular Congestive heart failure	174/110	154/94	156/99	" " "	" "
3*	64	F	Hypertensive cardiovascular Cerebral thrombosis	244/126	222/116	230/122	" " "	" "
4	66	M	Generalized arteriosclerosis Diabetes mellitus Aortitis	190/86	172/78	156/82	" " " (early)	" "
5	47	F	Hypertensive cardiovascular Cerebral thrombosis	248/134	234/128	210/120	Left ventricular hypertrophy	" "
6	55	M	Hypertensive cardiovascular	168/138	146/114	150/116	" " "	" "
7	62	M	Hypertensive cardiovascular Diabetes mellitus Pulmonary emphysema	172/96	144/88	138/88	" " "	" "
8	42	M	Essential hypertension in malignant phase	184/136	160/126	162/120	" " "	" "
9	32	M	Malignant hypertension	178/126	146/108	150/100	" " " PR 0.22	" "
10	56	M	Hypertensive cardiovascular Luetic aortitis Congestive heart failure	234/132	186/112	184/112	Left ventricular hypertrophy PR 0.22	" "
11	65	M	Hypertensive cardiovascular Carcinoma of urinary bladder	198/108	178/99	166/96	Left ventricular hypertrophy (early)	" "
12	67	F	Hypertensive cardiovascular Arteriosclerosis	154/116	148/98	148/98	Left ventricular hypertrophy Multifocal extrasystoles	" "
13	47	F	Luetic aortitis Congestive heart failure	252/104	204/90	198/92	Left ventricular hypertrophy PR 0.23	" "

TABLE I. (continued).
Changes of Blood Pressure and Electrocardiogram Due to Dihydroergocornine.

No.	Age	Sex	Diagnosis	Blood pressure			Electrocardiogram	
				Initial	5 min.	30 min.	Before	After
14*	57	M	Hypertensive cardiovascular Old cerebrovascular accident with slight hemiparesis	228/118	198/104	186/102	Left ventricular hypertrophy	" "
15	76	M	Hypertensive cardiovascular	228/94	194/80	204/92	" " "	" "
16	82	M	Hypertensive cardiovascular Cerebrovascular accident	186/112	144/86	134/88	" " "	" "
17	47	M	Essential hypertension	190/144	166/134	172/140	" " "	" "
18	74	M	Hypertensive cardiovascular Congestive heart failure	192/104	164/84	156/94	" " " Auricular fibrillation, myocardial damage	" "
19	72	F	Hypertensive cardiovascular Osteoarthritis	214/76	194/78	178/72	Left ventricular hypertrophy	" "
20*	58	F	Hypertensive cardiovascular Osteoarthritis, obesity	174/90	152/86	166/84	" " "	" "
21	82	F	Hypertensive cardiovascular Arteriosclerotic cardiov. Possible thoracic aortic aneurysm	232/106	194/94	170/98	" " "	" "
22*	75	F	Generalized arteriosclerosis Coronary sclerosis	160/80	150/72	128/64	" " "	" "
23*	67	M	Coronary thrombosis (antero-lateral wall infarction)	140/86	130/80	118/80	" " "	" "
24	80	M	Hypertensive cardiovascular Arteriosclerotic cardiov.	154/56	136/52	126/54	" " " Ventricular extrasystoles	" "

* History of anginal pain.

not contraindicated in patients with coronary disease.

Summary. The intravenous administration of 0.5 mg of dihydroergocornine to 24 patients with left ventricular hypertrophy caused no electrocardiographic changes indicative of coronary vasoconstriction. Although 6 of the 24 patients suffered from anginal pain and many more certainly had coronary disease, no angina pectoris followed the injection.

This particular alkaloid of ergot seems to be a safe drug in patients with coronary artery disease.

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17211. Cultivation of Pseudorabies Virus in the Yolk Sac of the Developing Chick Embryo.

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Successful cultivation of pseudorabies on the chorioallantoic membrane of embryonated eggs has been achieved by a number of workers,[1-6] several of whom propagated the virus in serial transfer for more than 50 passages. They noted that the titer of virus increased with continued passage, ability to kill embryos was gained and a lengthened incubation period for laboratory animals was acquired. The virus, however, invariably produced fatal infection. Although no reports were found that related to the cultivation of pseudorabies virus by the yolk sac method of Cox,[7] the attenuation of rinderpest by Jenkins and Shope[8] and of Newcastle virus by Beach[9] prompted the hope that cultivation in this manner might modify pseudorabies virus also. In both the rinderpest and Newcastle studies attention was centered on virus obtained from fluids, chorioallantoic membranes and embryos while titers attained in yolk sacs were not mentioned specifically. Indeed, other than for rickettsial and psittacoid agents, no information could be found that covered the growth of the smaller viruses in the yolk sac. In the work that follows attention was focused on growth of pseudorabies in the yolk sac membranes and the consequent effects on the virus.

Technic. The pseudorabies virus used throughout this work was a Hungarian strain sent to us through the courtesy of Dr. R. E. Shope in an infected rabbit brain preserved in glycerol. Part of the infected rabbit brain after washing was ground with sterile saline to make a homogeneous suspension and then 0.2 cc was inoculated intracerebrally into a rabbit. Two days later and immediately after death of the animal with typical symptoms of the disease, the brain was removed aseptically, weighed and ground in saline with a glass grinder to make a 10% suspension. The suspension was distributed in vials, sealed, quickly frozen and stored under dry ice refrigeration. Virus stored under such conditions was used to inoculate eggs in the initial passage. In subsequent passages 10% suspensions of fresh yolk sacs, prepared as for the rabbit brain, were used except in the first

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