DR) against several transplanted tumors has been compared with that of 5-fluorouracil (FU). 2. In Adenocarcinoma 755 and L-1210 leukemia FU is more effective than either nucleoside, although the latter have significant tumor-inhibitory activities. 3. In Sarcoma 180, FUDR is much more effective than FU; FUR has no significant activity. 4. In the Ehrlich ascites carcinoma, both nucleosides are more effective in prolonging life than is 5-fluorouracil, with FUR demonstrating activity at a low dose. In a 5-fluorouracil-resistant line of the Ehrlich ascites carcinoma, 5-fluorouridine is as active as in the parent strain. 5. In mice, the toxicity by repeated doses of FUR is much greater than that of FU; FUDR is less toxic than FU. In rats, the toxicity of FUR is much less pronounced than in mice, and the compound was very effective in inhibiting the growth of the Novikoff hepatoma.

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Reversibility of Venular Dilatation and Congestion in Diabetic Subjects Over a Period of Hours. (23778)

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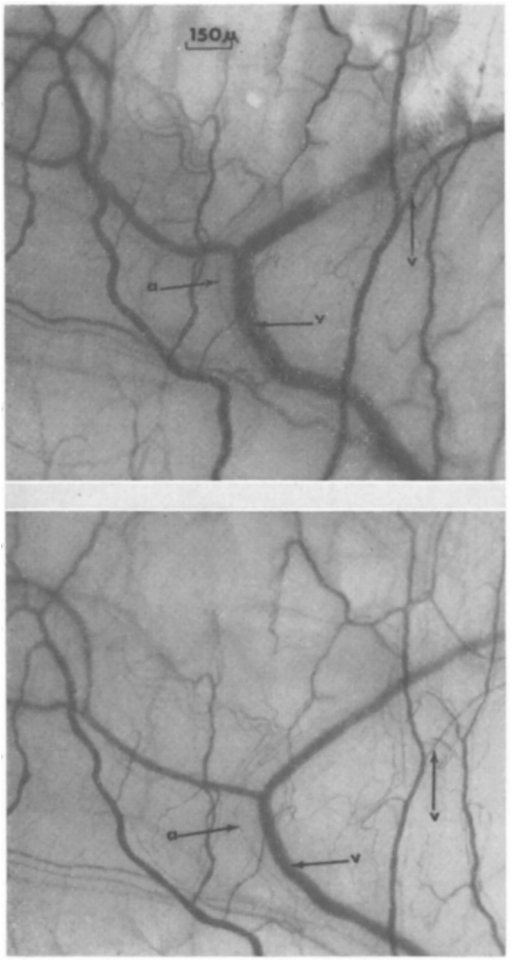
The pathogenesis of the late diabetic sequelae, retinopathy and glomerulosclerosis, remains unknown. With ophthalmoscope (magnification 15 x) the initial visible change in the retina of diabetics consists of venous congestion (phlebopathy) and small sanguinolent dots (micro-aneurysms)(1,2). By using the stereoscopic microscope (magnification 100 x) on the bulbar conjunctiva, one observes in a great number of young diabetics a dilatation and congestion of the venules associated with exudation(3). A relationship has been found between the degree of retinal changes and the conjunctival alterations(4). Venular dilatation in the conjunctiva is apparently a reversible change which varies in degree when observed at weekly intervals (5).

This investigation was undertaken to determine (1) whether venular dilatation fluctuates over a period of hours and (2) if so, whether it can be correlated with blood sugar levels or with time after administration of insulin.

Material and methods. Fifteen diabetic subjects admitted to the Hospital Teaching Clinic for regulation were chosen for study. Other than diabetes and its complications the subjects were free from disease. None had ketoacidosis. They included 6 females and 9 males whose ages varied from 10 to 43 years. The duration of diabetes ranged from 6



a, arteriole; v, venule

FIG. 1. Case R. C. Reversibility of venular dilatation and congestion occurring over period 8 a.m. (top) to 5 p.m. (bottom) of the same day.

months to 26 years. All took insulin, usually isophane (NPH) insulin alone or in combination with a small dose of crystalline insulin administered in the morning. The conjunctival vascular bed of the patients was microscopically studied and photographed from 2 to 5 times at irregular intervals between 8 a.m. and 6 p.m., using methods previously described(5,6). The vascular changes were evaluated and graded by measurements from the enlarged photomicrographs. If the calibers of identical vessel segments differed more than 100% at different times, the change was classified "marked." If the calibers differed less than 100%, the change was classified "moderate." In addition, blood glucose determinations (Somogyi-Nelson method) (7) were obtained three times during the day of examination, usually before breakfast and in the late forenoon and late afternoon. Control conjunctival studies were simultaneously performed on 15 healthy non-diabetic hospital employees of comparable ages.

Results. Seven out of the 15 diabetics demonstrated caliber changes in the venules within a period of hours. In contrast *none* of the control subjects showed such vascular changes. Of the 7 diabetics, 3 showed marked changes (Fig. 1) while in the remaining 4 patients the alterations were classified as moderate. With regard to the underlying cause of the reversible venular congestion, the following observations might be of interest: (1) the caliber changes occurred only among the 10 diabetics in whom venular dilatation (Vascular Pattern Change I)(5) was present at the initial observation; (2) in most of the diabetics exhibiting changes during the day, the venular dilatation tended to disappear during the later afternoon corresponding to the time at which isophane (NPH) insulin has its maximum effect; (3) in the diabetics showing vascular alterations, the initial observations were made early in the morning and thus the presence of more pronounced venular dilatation corresponded to the time when the effect of the isophane (NPH) insulin administered the previous day was minimal.

No relationship was apparent between the venular response change and duration of diabetes, size of insulin dose, clinical hypoglycemia or actual blood sugar levels.

Conclusion. Preliminary observations demonstrate that the venular dilatation and congestion observable in the conjunctival vascular bed of diabetics may often fluctuate within a period of hours. Venular dilatation was, as a rule, least marked in the later afternoon, at the time when dietary intake and insulin effect may be expected to produce the optimal daily metabolic pattern.

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Incidence of Parthenogenetic Development in Eggs Laid by Three Strains of Dark Cornish Chickens. (23779)

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Cells of parthenogenetic origin were observed microscopically in the blastodiscs of newly laid infertile avian eggs by Oellacher (1); Duval(2); Lacaillon(3); Bartelmez and Riddle(4), as well as by others. This literature has been reviewed by Olsen and Marsden (5). More recently, Kosin(6) reported finding nucleated cells in 15% of the germinal discs of infertile, newly-laid White Leghorn and Barred Plymouth Rock eggs. Olsen and Marsden(7) examined macroscopically the germinal discs of infertile chicken eggs following a 7-9 day period of incubation. A limited development of the germinal disc was observed in 13.5% of Dark Cornish eggs and 1.5% of the Silver Cornish eggs. No parthenogenetic development could be detected by this method in infertile eggs laid by Rhode Island Red and New Hampshire hens.

Materials and methods. Infertile eggs from 3 strains of Dark Cornish chickens were examined both microscopically and macroscopically to determine the relative incidence of parthenogenetic development. Sixty-four virgin Dark Cornish pullets were used in the testing. 11 birds (Strain A) were F_1 progeny from matings of hens from a flock maintained at Agricultural Research Center with males from a commercial source. Strain B was composed of 12 birds from another commercial source and Strain C was composed of 41 birds from a third source. Whether the birds from the 3 commercial sources were related is not known but it is considered unlikely. The first 2 eggs laid by each of these hens were broken out when laid, and the blastodisc of each was fixed, sectioned, and stained with Heidenhain's Iron Hematoxylin. Each blastodisc was studied microscopically and if either egg from each hen showed parthenogenetic development, the bird was classified as a producer of parthenogenetic eggs. This technic was similar to that used by Kosin(6). All eggs subsequently laid through a 5-month period were incubated 9-10 days and then broken-out and any macroscopically observable parthenogenetic development recorded. This technic was similar to that described by Olsen and Marsden(5). The results obtained at both times of observation (Table I) were recorded on an egg and bird basis, *i.e.* the number of eggs which showed parthenogenetic development in the total number of eggs laid, and the number of hens which laid one or more eggs showing parthenogenetic development in the total number of hens tested.

Results. All 11 birds of Strain A produced eggs showing parthenogenetic development at

TABLE I. Incidence of Parthenogenesis in 3 Strains of Dark Cornish Chickens Expressed as Percent of Birds and Percent of Eggs Observed Microscopically at Laying and Macroscopically after Incubation.

	At laying			After incubation		
		Parthenogenetic			Parthenogenetic	
Strain	Total No. obs.	No.	%	Total No. obs.	No.	%
	Incidence on bird basis					
A	11	11	100	11	7	63.6
B	12	10	83	12	4	33.3
C	41	23	56	41	3	7.3
Total	64	44	69	64	14	21.9
	Incidence on egg basis					
A	22	22	100	510	20	3.90
B	24	16	66	754	5	.66
C	82	35	43	1314	5	.38
Total	128	73	57	2478	30	1.16