which have been adrenalectomized and are maintained with cortisol.

The results of these experiments indicate that fructose possesses a marked hypoglycaemic effect in the newborn calf when it is present in the plasma at concentrations comparable with those which occur in the foetus. The rate at which the blood glucose falls in response to insulin in the spinal eviscerated cat is increased by the administration of fructose[16], but no such effect on the peripheral uptake of glucose has so far been described in the newborn animal. It is possible that the hypoglycaemic effect of fructose is related to the characteristically low concentration of glucose in the blood of foetal ungulates[17] because the rise in blood glucose concentration after birth is accompanied by the steady disappearance of circulating fructose in these species[17].

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Effect of Pancreozymin Preparations on Gastric Secretion

Magee and Nakamura have reported[1] that a pancreozymin and cholecystokinin (PZ/CCK) preparation increased gastric secretion in dogs with a simple gastric fistula. The authors, I am sure, have overlooked previous reports of this finding[2,3]. Using a commmercial and highly purified preparation of PZ/CCK, 'Cecekin' (Vitrum), it was found that doses ranging from 18·75 to 600 u/h increased gastric acid output in dogs with a simple gastric fistula[2]. These investigations were confirmed in later experiments in which bethanechol ('Urecholine') was combined with 'Cecekin'. In those experiments[3], bethanechol plus 'Cecekin' produced a greater acid response than bethanechol alone.

Recently, it has been shown that 'Cecekin' stimulates the secretion of Brunner's glands, whereas pure polypeptide gastrin has no effect[4]. Until a pure polypeptide is available it is not justifiable to conclude that the currently available preparations of PZ/CCK contain duodenal gastrin.

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PATHOLOGY

β-Aminopropionitrile and the Mucopolysaccharides of Embryonic Chick Aortae

THERE is some evidence to suggest that mucopolysaccharides are involved in the connective tissue disorder of lathyrism, which is produced when certain experimental animals are exposed to the toxic effect of β-aminopropionitrile (BAPN) and related compounds. Thus, Menzies and Mills[1] found that the metachromatic material of the ground substance was increased in lathyritic rat aortae, and Grant, Hathorn and Gillman[2] found an increased content of hexosamine in the aortae of lathyritic rats. Levene and Gross[3] showed that an abnormality of collagen can be demonstrated very soon after the injection of BAPN into chick embryos. We have investigated the aortic mucopolysaccharides in this experimental model, to see if changes in the mucopolysaccharides occurred in parallel with the changes in collagen.

Fertile eggs of the White Leghorn variety were divided into two groups, normal and lathyritic. Embryos of the normal group were killed on the fourteenth, sixteenth and seventeenth days of incubation, and the aortae were carefully removed, a minimum of twenty aortae being pooled from each group. Lathyrism was induced in the lathyritic group on the fourteenth day of incubation by injection of BAPN (10 mg in 0·1 ml. of water) on to the chorioallantoic membrane. Aortae were collected on the fifteenth, sixteenth and seventeenth days of incubation. Pooled samples of aorta were freeze-dried and ground to a powder. For "extractable collagen" assays, the hydroxyproline content of cold (4° C) 1 molar sodium chloride extracts of fresh aortic tissue was measured as described by Levene[4]. Mucopolysaccharides were isolated from aortic powder by papain digestion, dialysis and lyophilization; separated by electrophoresis on cellulose acetate, and stained with alcian blue, as described by Manley[5]. The relative proportions of the alcian blue-positive bands were measured in a recording densitometer. Total hexosamine was measured by the method of Boas[6] in acid hydrolysates of aortic powder. Glucosamine and galactosamine were separated by the column chromatographic method of Gardell[7]. Samples of aorta from each group were also examined histologically after fixation in formal saline and 90 per cent methanol.

Cold 1 molar sodium chloride-extractable collagen increased sharply after injection of BAPN, but remained unchanged in the control aortae. Electrophoresis of isolated aortic mucopolysaccharides produced three alcian blue-positive bands in every case, corresponding in mobility, staining reactions, and hyaluronidase-susceptibility[5] to hyaluronic acid, heparitin sulphate and chondroitin sulphate. The electrophoretic pattern showed no significant difference between the normal and lathyritic groups, though both groups did exhibit a maturation phenomenon characterized by an increase in the proportions of hyaluronic acid and heparitin sulphate, relative to chondroitin sulphate, with increasing time (Table 1). Total aortic hexosamine did not change significantly in either group, remaining within the range 1·1 ± 0·1 mg/100 mg of dry aorta. The glucosamine : galactosamine ratio, measured in both control and BAPN-injected groups on the sixteenth day, was 1 : 1·2 and 1 : 1·3, respectively, a difference which was not considered to be significant.

Table 1. RELATIVE PROPORTIONS OF THE THREE ALCIAN BLUE-POSITIVE FRACTIONS OBTAINED BY ELECTROPHORESIS OF AORTIC MUCOPOLYSACCHARIDES FROM NORMAL AND LATHYRITIC CHICK EMBRYOS

Sample	Percentage total alcian blue-positive material					
	Fraction 1, hyaluronic acid		Fraction 2, heparitin sulphate		Fraction 3, chondroitin sulphate	
	Normal	BAPN	Normal	BAPN	Normal	BAPN
14 days	4·7	—	1·3	—	94·0	—
15 days	—	7·0	—	3·8	—	89·2
16 days	9·8	9·7	5·6	6·3	84·6	84·0
17 days	11·4	10·1	8·2	9·5	80·4	80·4