Blood samples were taken in the morning between one and two hours after a light fat-free breakfast.

Serum cholesterol was estimated by Abell's method (Abell *et al.*, 1952); but instead of slow centrifuging to separate the ethereal and aqueous layers the tubes were left to stand at room temperature for 20 to 30 minutes.

Paper electrophoresis was carried out by the method described by Flynn and de Mayo (1951). 0.15 ml. of serum was applied to a 3-in. (7.5-cm.) strip of Whatman No. 3 filter-paper. Strips were run for 17 hours (overnight) at $\frac{1}{2}$ mA/in. Each strip was unequally divided, the narrower part being stained for protein with light-green dye and the broader for lipids with Sudan black.

Results

Most of the patients were already taking a diet restricted in fat, and no changes were made over the period of observation. Several patients showed minor fluctuations in weight, but in none was there any consistent or progressive change.

The initial dose of lipostabil was 4 or 5 capsules a day, one being taken after a small uncooked meal, and two after a larger cooked meal. For the second month the dose was increased, and for the third month it was again increased up to the limit of tolerance (usually 8 to 11 capsules a day).

Cholesterol.—Four cholesterol values were obtained at weekly intervals before starting treatment, and the later results are expressed as a monthly average (Table II). As will be seen, there was a slight

TABLE II.—Serum Cholesterol (mg./100 ml.)

Weekly Cholesterol During Control Period	First Month	Second Month	Third Month	After Stopping Treatment
351-340-344-345	335	328	312	317

progressive fall over the three-months period. However, the average value one month after stopping treatment was also lower than the control figures. There is no evidence that the effect of lipostabil can persist for some weeks after stopping treatment, and it is possible that this change might be part of a seasonal variation in diet or activity. But, in any case, the reduction was less than would be required of an effective therapeutic agent. The capsules contain linoleic acid, which is known to be of value in reducing serum cholesterol levels in man, and such reduction is related to the amount of linoleic acid given. However, the dose of lipostabil is limited by side-effects, particularly gastric upset, probably due to the theophylline, so that in practice an effective fall in cholesterol could not be achieved. Another common side-effect was constipation, but this was not as troublesome as the gastric symptoms.

Pre-beta-lipoprotein.—There is at present no satisfactory way of expressing the size and density of this band as an exact mathematical measurement, but the width has been recorded according to the grades proposed by Smith (1957). Any improvement, therefore, had to be assessed visually, but, though there were minor changes in several patients, none showed any progressive or consistent change (see Fig.).

Clinical Assessment.—The lesions in the patients with xanthomatosis and xanthelasma were photographed during the control period and comparison between these photographs and the lesions at the end of the period of

Electrophoretograms of the serum of a man age 55 before and after treatment with lipostabil for six weeks. The control strip shows a heavy pre- β band, and the pattern in the second strip is identical.

treatment showed no change. In two of the eight patients who completed three months' treatment the angina became more severe, in one it improved, and in the other five there was no change.

Summary

Ten patients with ischaemic heart disease and well-marked lipid disturbances were treated with lipostabil. Although the dosage was increased to the limits of tolerance no satisfactory fall in blood cholesterol was obtained. The lipoprotein pattern, studied by electrophoresis, and in particular the pre-beta band, was unchanged.

The clinical course of these patients was what could be expected from the natural history of this disease.

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Medical Memoranda

Unusual Case of Congenital Pyloric Stenosis

The case described presented some unusual and interesting features which make it worth recording.

CASE REPORT

A male first-born infant was delivered by caesarean section because of cephalo-pelvic disproportion. His birth weight was 7 lb. (3,175 g.) and he gained weight slowly but steadily till 14 weeks, when he weighed 11 lb. 5 oz. (5,130 g.) and appeared a normal baby.

He was admitted to hospital on March 9, 1956, at the age of 15 weeks with a history of vomiting for 10 days. The vomiting followed every feed, contained "coffee-grounds" material, and was non-projectile. Melaena stools had been passed on two occasions; at other times the stools had appeared normal.

On examination he weighed 9 lb. 14 oz. (4,480 g.) and was very pale. No abnormality was noted in the abdomen or elsewhere. The haemoglobin was 58%, red cells 2,840,000 per c.mm.; the white-cell count, differential count, platelet count, bleeding-time, and clotting-time were normal.

The vomiting continued, sometimes forcibly and sometimes containing altered blood. Several melaena stools were passed and the haemoglobin fell to 26%. There was an intermittent fever. A blood transfusion was given via a cannula tied into the long saphenous vein anterior to the medial malleolus at the left ankle, and on March 12 a laparotomy was performed (Mr. A. Jolleys). The stomach was dilated and a pyloric tumour was palpated. A Ramstedt operation was done. No other abnormality was found in the abdomen. The intravenous drip was discontinued after 24 hours, by which time 230 ml. of blood, 200 ml. of 4.3% dextrose in 0.18% saline, and 2 mg. of tubocurarine had passed through the cannula.

Subsequent progress was complicated by the continuation of a low-grade pyrexia, without obvious cause except for slight redness around the drip wound. For this reason penicillin and streptomycin were given intramuscularly for

Photograph of left foot showing superficial skin gangrene.

six days into both thighs and buttocks. Four days after operation the whole of the skin of the left lower limb below the mid-thigh became cold and "marbled" (blotchy cyanosis alternating with pallor). A black blister appeared on the great toe, and obviously there was circula-

tory inadequacy despite the fact that femoral, posterior tibial, and dorsalis pedis pulses were palpable and equal on the two sides. After a further three days a line of demarcation appeared across the proximal phalanx of the great toe and a purple spot of superficial skin gangrene on the second and fifth toes (see photographs). The "marbling" was by now inconstant and appeared particularly when the thighs were flexed with the infant in the sitting position.

The infant slowly improved; the superficial skin gangrene of the second and fifth toes separated and healing occurred. After amputation of the distal and half of the proximal phalanx of the great toe, the wound readily healed.

The infant was discharged well on May 16 weighing 12 lb. 5 oz. (5,585 g.).

COMMENT

The onset of symptoms in this case was unusually late, the infant being normal until 14 weeks of age. Rendle-Short and Zachary (1955), stressing the rarity of onset after 12 weeks of age, were able to find only one such case in the literature and added two of their own. Congenital pyloric tumours can undoubtedly persist into adult life, when their discovery is usually an unexpected finding during the course of investigations into the cause of dyspepsia and peptic ulceration. Such cases rarely give a history of feeding disorders in infancy (Desmond and Swynnerton, 1957).

The vomiting of altered blood in pyloric stenosis is common, but obvious melaena and profound anaemia are very rare. Such extensive bleeding is more likely to be due to an associated hiatus hernia (I. Forshall, 1957, personal communication). However, in this case the cessation of vomiting after the Ramstedt operation and the inability to demonstrate a hernia or reflux by

careful radiological screening would seem to rule out this possibility.

The other unusual feature was the complication of peripheral gangrene. Gangrene of the extremities in infancy falls into two fairly distinct categories. (1) The so-called "spontaneous" gangrene of the newborn, where the following factors are concerned: difficult labour, accidents of birth, including obstetrical procedures (Heller and Alvares, 1951); prematurity; cardiovascular anomalies (Gross, 1945); metabolic disorders such as diabetes (Lawrence and McCance, 1931); galactosaemia (Haas, 1955); infections such as syphilis (Foster and Taylor, 1949); displaced injections into the umbilical artery instead of the umbilical vein (Mills, 1949). (2) Those occurring after the first few weeks of life, the commonly associated conditions being infectious diseases (measles, diphtheria, etc.), anaemia, dehydration, local trauma, local sepsis, pink disease, arteriovenous fistulae, and mechanical causes.

In 1914 von Khautz was able to collect from the literature 50 cases of peripheral gangrene in children, 39 of them in association with infectious diseases. With improvements in the treatment and control of such disease the pattern has changed so that the other factors assume greater importance, but local and general infection remain major causes (Stokes and Shumacker, 1952). Miller and Sebeck (1955) described five cases of peripheral gangrene in infants following intravenous infusions via "cut-down" cannulization of vessels. In all five there were complications of the kind referred to, but the authors stress the importance of vascular spasm. Areas of necrosis of skin proximal to the site of "cut-down" drips are not uncommon (D. Browne, 1956, personal communication) but occurring distally they are rare.

In the present case the whole of the skin below the mid-thigh suffered from circulatory inadequacy despite the fact that the pulses were palpable and equal on the two sides at all times. The "cut-down" was performed according to accepted techniques, and bandaging of the immobilized limb was never overtight. The interval of four days between the removal of the cannula and the onset of skin changes makes it difficult to believe that the latter were due directly to the drip. It seems that a widespread, superficial, arteriolar spasm in the left lower limb is the best explanation for the observed changes—the anaemia, dehydration, operative and local trauma, local sepsis, etc., acting as adjuvants.

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