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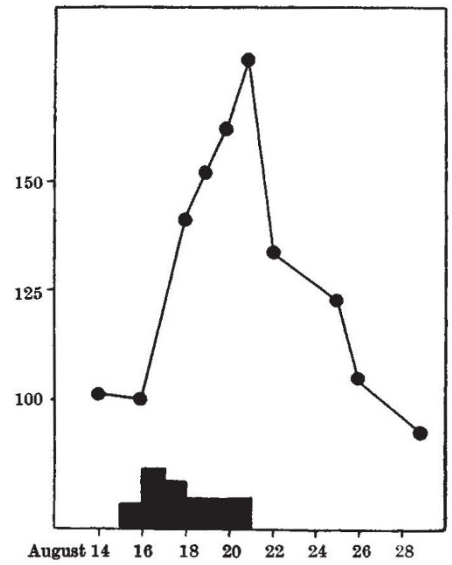
Effect of *p*-Aminobenzoic Acid on the Leucocyte Count in Leukæmia

A LEUCOPENIC effect of *p*-aminobenzoic acid has been noticed in several studies on the treatment of rickettsial infections in man with this drug[1].

In the Radiumstationen in Aarhus we have investigated this effect of *p*-aminobenzoic acid on the leucocyte count in leukæmia. The drug was given to a few patients with chronic leukæmic leukæmia (four patients with chronic lymphatic leukæmia and two patients with chronic myeloid leukæmia). The administration and dosage were at first as recommended in rickettsial infections (about 2 gm. every second hour); later the dosage was considerably decreased without any influence on the effect. In all six cases the administration of *p*-aminobenzoic acid caused an abrupt rise in the leucocyte count, which continued to increase so long as the drug was given. The daily increase was 10,000 to 100,000 or more cells per c.mm., demonstrated both in capillary blood from the ear lobule and in the venous blood from the cubital vein. When the leucocyte count had been increasing for four or five days, the patients often complained of pressure and soreness in the swollen lymph glands and in the enlarged spleen, and consequently the administration of *p*-aminobenzoic acid was stopped. Hitherto X-ray therapy has been instituted immediately after the withdrawal of *p*-aminobenzoic acid, and the decrease in leucocytes has followed as usual or perhaps a little more rapidly. The increase in the leucocyte count caused by *p*-aminobenzoic acid was accompanied in the myeloid leukæmias by a slight shift to the left, which could be demonstrated more clearly in the bone marrow. Corresponding changes could not be demonstrated in the lymphatic types. Hæmoglobin and erythrocyte count were unaffected.

The mechanism of the effect of *p*-aminobenzoic acid in leukæmia is not yet clear. Experiments concerning this point are in progress in this Laboratory. Experiments have shown that an acidosis produced by ammonium chloride does not affect the leucocyte counts in leukæmic patients, so we may exclude the possibility that the slight acidosis which often results from treatment with *p*-aminobenzoic acid is the cause of the rise in leucocyte counts.

p-Aminobenzoic acid has been given to eight patients with non-leukæmic diseases (normal blood picture) without causing any significant variations in the leucocyte counts. Consequently there seems to be a difference in the effect of *p*-aminobenzoic acid on the normal and leukæmic leucocytes.



EFFECT OF *p*-AMINOBENZOIC ACID IN A CASE OF CHRONIC MYELOID LEUKÆMIA. THE LEUCOCYTE COUNT (THOUSANDS PER C.MM.) PLOTTED AGAINST TIME. THE BLACK AREA INDICATES THE DISTRIBUTION OF *p*-AMINOBENZOIC ACID, WHICH WAS GIVEN FROM AUGUST 15 UNTIL AUGUST 20 INCLUSIVE, 1946, THE TOTAL DOSE BEING 52 GM. X-RAY THERAPY WAS INSTITUTED ON AUGUST 21

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Electron Microscope Observation of Renosine

RENOSINE is the structure-protein of the kidney discovered by I. Banga and A. Szent-Györgyi[1]. It constitutes up to a third of the total protein content of the kidney, is highly viscous, exhibits thyxotropy and an intense negative double refraction of flow. It contains inextractable phosphorus and seems thus to be a nucleoprotein.

To determine visible renosine micelles, the following electron microscopical investigations were carried out. Renosine extracts were prepared, according to a method similar to that described by Banga and Szent-Györgyi, from guinea pig kidneys by means of Edsall's solution containing 30 per cent urea. For further purification, the renosine was precipitated and dissolved once more. The solutions tested were centrifuged (10,000 revolutions) for one hour, and 1 ml. of the top layer was diluted with the solution used in the extraction in the ratio of 1 : 100 or more. A droplet of the diluted solution was placed upon the aluminium film of the specimen grid. After drying, it was rinsed for a short time with twice-distilled water and dried again.

The electron micrographs of such renosine preparations show filaments that tend to branch and split