Full investigation into the chemistry, pharmacology, clinical activity and use of these and related compounds is being actively pursued, and the results of these researches will be published in detail elsewhere.

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## Effect of Cortisone on the Blood

Nicol and Snell[1] showed that the phagocytic activity of the reticulo-endothelial system becomes depressed during the first two weeks of cortisone treatment and recovers to about the normal level during the third and fourth weeks if the cortisone injections are continued. The present communication shows that cortisone also produces changes in the blood.

Twelve male guinea pigs were given a daily intramuscular injection of 10 mgm. of cortisone acetate (Roussel) for a period of five weeks. Blood was removed by heart puncture on the day prior to the commencement of the cortisone injections and thereafter at the end of each week. The blood films were stained with Giemsa's stain.

*Erythrocytes.* During the first two weeks of cortisone treatment, the degree of polychromasia and anisocytosis seen in the normal blood picture[2] became increased, and at the end of the second week immature red cells were present in greater numbers. No significant change was noted in the red-cell count; but there was a drop in the hæmoglobin-level from 81 to 70 per cent when tested by the Sahli method.

*Leucocytes.* The changes in the leucocytes are shown in Table 1.

Table 1. Leucocyte Counts from 12 Guinea Pigs each of which received 10 mgm. of Cortisone Daily for 5 Weeks

| No. per cu.mm. | Control | Experimental results No. of weeks of cortisone treatment | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| Total number of leucocytes | 8,700 | 6,950 | 4,200 | 5,100 | 10,200 | 9,300 |
| Lymphocytes | 5,600 | 4,800 | 1,300 | 1,700 | 2,700 | 1,500 |
| Pseudo-eosinophils | 2,800 | 1,900 | 2,900 | 3,400 | 7,200 | 7,600 |
| Monocytes | 300 | 250 | — | — | 300 | 200 |

The control results in Table 1 show the average number of leucocytes in the twelve animals on the day before the commencement of the cortisone injections; the experimental results give the average number of leucocytes in the animals at the end of each week of cortisone treatment.

It can be seen that the total leucocyte count dropped below normal during the first three weeks of the cortisone injections, then rose above normal during the fourth and fifth weeks of treatment. These changes were accounted for by a sustained fall in the number of lymphocytes and a gradual rise, after the first week, in the number of pseudoeosinophils. Moreover, when the pseudoeosinophil count dropped at the end of the first week, a high proportion of the cells showed multiple nuclear lobes, whereas from the second to the fifth week, as the pseudoeosinophils increased in number, a greater proportion showed a single nuclear lobe indicating increased production of polymorphs.

Yoffey[3] has shown that the administration of compound *E* (cortisone) in doses of 5 mgm. per day for seven days appears to stimulate the formation of red cells in the normal male guinea pig, together with a possible increase in the myeloid cells of the bone marrow. Antopol[4], working on the mouse, reported that a single dose of 2·5 mgm. of cortisone subcutaneously produced depression of the circulating lymphocytes and also an initial granulocytopœnia followed by granulocytosis. He also found that the erythrocyte count showed no significant difference between control and treated animals.

The above results show that the depression of the reticulo-endothelial system which occurs during the early stages of cortisone treatment[1] is accompanied by a fall of the total leucocyte count in the blood. The recovery of the phagocytic activity of the reticulo-endothelial system during the third and fourth weeks of cortisone administration is, however, not associated with a return to normal of the differential leucocyte counts, since the lymphocytes remain reduced in number and the pseudoeosinophils become markedly increased.

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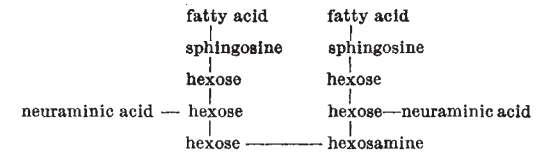
[1] Nicol, T., and Snell, R. S., *Nature*, **174**, 554 (1954); and communication in the press.
[2] Bilbey, D., and Nicol, T., *Nature*, [176, 1218 (1955)].
[3] Yoffey, J. M., *et al.*, *J. Anat.*, **88**, 115 (1954).
[4] Antopol, W., *et al.*, *Blood*, **6**, 513 (1951).

## Composition of Gangliosides from Human Brain

Gangliosides are lipids closely allied to the cerebrosides. They were so named because of their occurrence mainly in the ganglion cells of the nervous system, although gangliosides seem to exist in most parenchymatous organs. Klenk *et al.*[1], for example, have isolated gangliosides from brain, spleen and red cells. The composition of ganglioside from brain as given by Klenk had to be modified after the isolation of chondrosamine from brain ganglioside by us[2], and in a recent paper Klenk *et al.* suggested its composition as follows:




In the same paper they also assert the existence of only one type of ganglioside from brain.

The value given for hexosamine by Klenk (7 per cent) is rather low when compared with the value earlier given by Blix[3] and later by Yamakawa and Suzuki[4].

Klenk *et al.* have also investigated the amount of ganglioside in human brain by determining the content of neuraminic acid. On testing the result with another extraction method, I found values 2–3 times higher than those reported by Klenk.