

## STUDIES IN ARTERIOSCLEROSIS

Much has appeared in the literature in recent years upon the etiology and process of development of arteriosclerosis. Many observations have been made upon the human subject and also in experimental animals, of points co-relating certain factors with the production of diseases in the arterial tree. In most instances these factors have been carefully studied by competent observers and in many instances the results have been verified by others.

The gathering of facts concerning arteriosclerosis is quite simple—the interpretation of these involves much difficulty. In carrying out any experiment or in offering reasons for a given result, we are constantly reminded of the manifold factors which enter a given experiment or which are naturally present. Often our experiment on animals only induces altered conditions which indirectly bring about the result we are seeking. That the greatest care must be exercised in drawing inferences from animal experimentation is well illustrated in studies upon arteriosclerosis.

Recently Levin and Larkin<sup>1</sup> have published the results of their experiments on dogs, in which by producing an arterio-venous anastomosis between the external jugular vein and the external carotid artery, they arrive at the sweeping conclusion that "arteriosclerosis can not be artificially induced in a previously healthy blood-vessel by a change in the blood pressure alone." To this type of conclusion we must take exception.

Levin and Larkin, experimenting on ten dogs, joined the external carotid artery to the

<sup>1</sup>*Jour. Exper. Med.*, 1911, XIII., p. 24.

external jugular vein. In two of these dogs thrombosis occurred close to the line of suture in the vessels. All but two of the remaining eight animals received injections of adrenalin at varying periods. These eight dogs, which form the positive results and from which the above positive statement respecting arteriosclerosis was made, were allowed to live 102, 38, 72, 15, 124 and 58 and 44 days, respectively.

No one, who has studied diverse pathological lesions, will deny that the distribution of various lesions in organs is not uniform in the animal world. Man is particularly subject to lesions of the circulatory system—a condition not so frequent in lower animals. Rabbits and horses occasionally suffer from arterial lesions—more often seen in the older animals and in certain breeds. Dogs and cats rarely develop lesions in the arteries, even under the most trying circumstances.

This varying susceptibility still awaits an explanation, but in the face of our ignorance in the matter, we must assume the greatest care in drawing broad conclusions or in proposing far reaching principles. Negative experimental results for the dog have no positive bearing upon experimental facts observed in other animals.

Much criticism is offered against the use of the rabbit for experiments upon the circulatory system. The comment has been that spontaneous arterial disease occurs in this animal. And yet none of the critics offer any suggestion for the cause of this spontaneous lesion! Properly selected animals and controlled experiments can reduce the error of