Fundus Diabeticus An Evaluation of the Pre-Retinopathic State

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Analogous to the differentiation between hypertension fundus and hypertensive retinopathy, it is of advantage to differentiate between fundus diabeticus and diabetic retinopathy.

Fundus diabeticus is characterized by the fact that the retinal parenchyma has (thus far) not been damaged and, therefore, that a complete recovery is possible.

Diabetic retinopathy on the other hand is always accompanied by damage of the retinal parenchyma, however small it may be, which makes a complete recovery impossible.

Fundus diabeticus is not identical with pre-diabetes as in the first the presence of diabetes has already been proved clinically.

Functional retinal disturbances in fundus diabeticus could not be demonstrated thus far due to the insufficiency of the procedures employed.

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The same holds for a variety of functions of other tissues.

Refined electrodiagnostic procedures (ERG, EOG), however, are able to demonstrate a beginning functional loss in fundus diabeticus. Blood chemistry, determination of capillary fragility and histology of skin biopsies in fundus diabeticus have proved the existence of abnormalities in the capillary wall and blood content. The latter findings might well be held responsible for the retinal functional disturbances proved.

It seems of importance to improve—if possible—the patients' condition as long as he is still in the state of fundus diabeticus. Any known therapy including dietary measures (multiple un-saturised fatty acids) will certainly be more effective in the end in this state than if treatment starts in the stage of diabetic retino-pathy.

(Will be published in extenso in the American Journal of Ophthalmology.)

Discussion

Oosterhuis: I should like to emphasize that the electroretinographic investigation, as carried out by Prof. Henkes, is of particular importance in connection with diabetic retinopathy, as we have previously had no reliable criteria for estimating the retinal function in this condition.

The rise in the electroretinogram accompanying a rise in blood sugar in diabetics can be correlated, in my opinion, with the fact that the ischaemia of the retinal tissue due to vascular damage can thus be partially compensated. Would it not be better to take the electroretinogram when the blood sugar value is low, so that an even clearer differentiation may be made between the normal and the abnormal response?

Houtsmuller: We rejected the idea of making retinograms with a low blood sugar value 4 years ago because of the increased chance of haemorrhage in the fundus and other retinal damage as the result of the hypoglycaemia. In our opinion induced hypoglycaemia for the sake of experiment is not justified medically for such an easily damaged tissue as the diabetic retina.

Leeman: It is not logical, when increasing the intake of unsaturated fatty acids, to reduce the intake of saturated fatty acids?

Houtsmuller: The saturated fatty acids should be replaced gradually by multiple unsaturated fatty acids

as otherwise the calorie intake would become too high.