CORRESPONDENCE

Diabetic Retinopathy: Early Diagnosis and Effective Treatment

by Dr. med. Aris N. Kollias, Prof. Dr. med. Michael W. Ulbig in volume 5/2010

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Conflict of interest statement

The author declares that no conflict of interest exists according to the Guidelines of the International Committee of Medical Journal Editors.

Potentially Dangerous treatment

The authors recommend—and reinforce this recommendation with a question in the CME test—an optimal value for glycated haemoglobin (HbA_{1c}) of below 7%, in order to counteract the development and progression of diabetic retinopathy.

In support of this they cite the DCCT study (1), but this study was conducted in patients with type 1 diabetes. Whether the results translate to patients with type 2 diabetes is not only questionable but has been disproved by the results of the large studies of type 2 diabetes. The UKPDS 33 (2) is incorrectly cited: lowering HbA_{1c} from 7.9% to 7.0% does not reduce the need for laser coagulation of the retina by one third but by a rather more modest amount—namely, from 11 per 1000 patient years to 7 per 1000 patient years. Doctors and patients will have to reach a joint decision about whether the price of achieving this objective is not rather too high when considering the additional rate of severe hypoglycemias (which require help from third parties) of 7% for glibenclamide and 11% for insulin per 10 years.

HbA_{1c} was lowered to less than 7% in only in 3 larger studies (3, 4, 5). The retinopathy rate did not fall in any of these three studies. Why the authors recommend a potentially dangerous treatment (hypoglycemias, excess mortality as in ACCORD) remains a mystery.

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Ultraviolet Irradiation

Because the focus is on early and effective treatment, I wish to mention our positive experiences with ultraviolet irradiation of the blood (UBI) in a scenario of prevention or long term delay of diabetic complications (1). The use of laser treatment did not vary greatly—no more, not much less—but patients' vision was improved and was maintained at a constant level for a long time—in many cases, for decades. These experiences were supported by long term improvements of the blood pressure amplitude and lowered plasma viscosity and thrombocyte hyperaggregability (2). Diabetic foot can be avoided. UBI requires to be applied over a long time (so-called refresher treatment with UBI at 6–8 week intervals) but is delegable, economical, and saves medication. At this time of exploding healthcare costs, it should not be forgotten but should be newly evaluated instead.

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Rheohemapheresis May Be Successful

The authors correctly write that diabetic retinopathy is a microangiopathy of the retina with changes to the vascular walls and the rheological properties of blood. However, they omitted to mention a particular therapeutic approach that has been used to treat diabetic retinopathy for many years (1).

The rheological properties of blood are primarily determined by the number of erythrocytes. The packed cell volume should be lowered if patients tolerate this without developing problems. Further, blood rheology

is determined by plasma proteins, which can be eliminated by means of apheresis technology. Rheohemapheresis has been used successfully for many years to improve the rheological properties of blood, not only in diabetic retinopathy but also in the treatment of other diabetes related complications. In diabetic foot syndrome, for example, apheresis therapy has been shown to accelerate wound healing and helped avoid amputations (2).

Apheresis technology has also been used to treat all pathologies that are caused by impaired blood viscosity or microcirculation (3).

Rheohemapheresis is a safe therapeutic option that imposes a minimal burden on the patient. If the indication is defined correctly, it can complement the therapeutic modalities described by the authors and can delay vision loss in diabetic retinopathy. The positive effects on rheology apply not only locally but also systemically.

The costs of outpatient rheohemapheresis therapy are usually not covered by statutory health insurance companies.

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In Reply:

The evidence based guidelines of the German Diabetes Society, the Drug Commission of the German Medical Association, and the International Diabetes Federation recommend an HbA_{1c} measurement of ≤6.5% in people with type 2 diabetes. They state clearly and unequivocally that individualized therapeutic planning is essential, bearing in mind the patient's age and comorbidities (the younger and healthier the patient, the closer their measurement should be to the recommended target value for HbA_{1c}), and balancing risks and benefits (avoiding severe hypoglycemias, tolerability of the drugs, etc). The patient's wishes should also be considered after appropriate information has been given.

Regulating blood glucose (HbA_{1c} in the region of 5%) is often possible without causing severe hypoglycemias in patients with type 2 diabetes. For several reasons, the VADT, ACCORD, and ADVANCE studies do not translate to patients in Germany without critical analysis (for example, VADT included almost exclusively men, ACCORD deployed therapeutic strategies that are almost never used in Germany, and ethnicity was an issue in ADVANCE). Further, the categorization of the patients into type 1 and type 2 does not do justice to the complexity of diabetes, especially that of type 2 diabetes (1).

Rheohemapheresis is expensive and of limited value for diabetic retinopathy, hence the health insurers justifiably do not cover the procedure.

UBI therapy is not recommended from an ophthalmological perspective.

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