Experience with the Argon Laser for Treatment of Patients with Diseases of the Posterior Ocular Segment

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A review is given of the use of argon laser therapy in patients with exudative maculopathies, diabetic retinopathy, retinal defects and retinal degenerations.

Discussion

Riaskoff: How many laser coagulations are on the average necessary to eliminate approximately a quarter of the retinal surface? In view of the relatively large number of coagulations necessary with the laser, the xenon lamp might be more suitable for such 'circumscribing' treatment. As regards the fear of shrinking of the vitreous on extensive coagulation with the xenon lamp, this risk does not appear to be real if the vitreous is clear. The increase in temperature occurring during coagulation at the pigment layer and spreading from there to the surrounding tissues appears to be so small in the vitreous periphery next to the retinal surface that a damaging effect on the vitreous can be hardly expected. [Crowder, J.: Measurements of the vitreous temperature during photocoagulation in the rabbit eye. Acta Ophthal., suppl. 76, p. 32, 1963]. In my experience, shrinkage phenomena at the surface of the retina develop in the vicinity of excessively hard coagulates, or if an area is coagulated where the retina is covered by a fibrous membrane. So far, I have not observed shrinkage phenomena in the vitreous itself.

Reply: It is difficult to state how many laser coagulations are necessary on the average to eliminate approximately a quarter of the retinal surface. The size of the coagulated retinal areas only corresponds to the spot-size of the laser used at low intensities. With higher intensities the coagulation effect becomes much greater due

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to the emission of heat, especially so if small spots are used. In addition, the variability in pigmentation plays an important part. For this reason an ophthalmoscopic estimate is made to determine whether approximately a quarter of the retina has been eliminated.

Keur: Can the laser completely substitute the xenon coagulator in all cases? If not, what are the differences?

Reply: For treatment of disorders of the posterior ocular segment the laser can completely substitute for the xenon coagulator, except for large retinal ruptures and tumours.