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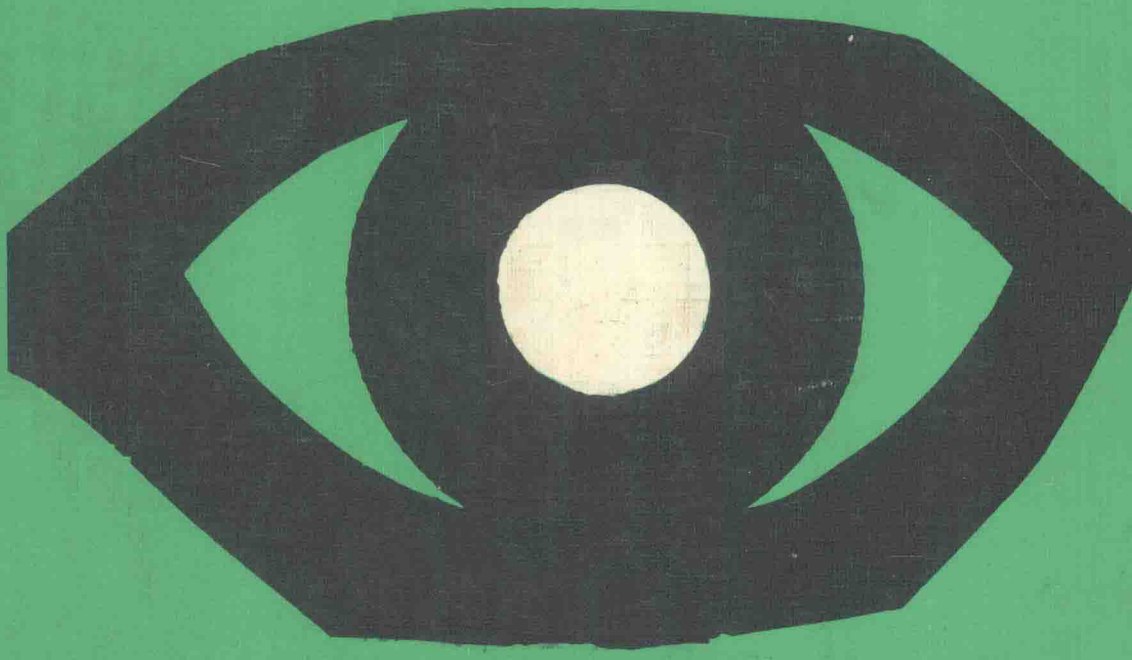
Edited by E.L. Greve, W. Leydhecker
and C. Raitta



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E.L. Greve, W. Leydhecker and C. Raitta (Editors)

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Second European Glaucoma Symposium

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Editor H. E. Henkes

OPENING ADDRESS

Dear Professor Leydhecker, Ladies and Gentlemen, my dear friends,

I would first of all like to thank Professor Leydhecker and his Committee for having asked me to be the honorary president of this Glaucoma Congress. I am very honored at this token of esteem and friendship.

Some years ago the European Glaucoma Society was founded in Ghent. Professor Leydhecker became the president and Dr Greve the general secretary. The first congress took place in 1980 at Brighton and was a great success.

I am sure that the present congress will be at least as successful as the previous one, when one considers the great number of participants and the quality of the speakers. Glaucoma still remains at the forefront of clinical ophthalmology and the cases of blindness resulting from glaucoma are very numerous.

Although we have at the present time very good medical treatment thanks to the cholinergic and anticholinesterasic drugs, epinephrine, betablockers and inhibitors of carbonanhydrase, and similarly very good surgical treatment, including trabeculectomy, much basic research is still needed before we have the ideal therapeutics. In the present state of our knowledge, there are still several problems which have to be solved:

1. The pathogenesis of glaucoma is still imperfectly known.
2. The efficacy of trabeculoplasty by laser photocoagulation is still being discussed.
3. Computer assisted perimetry and some other psychophysical tests have to be brought up to data and improved.

These problems are precisely the main topics of this congress, which once more will demonstrate that research in glaucoma is a lively science.

Ladies and Gentlemen, my dear friends, we should thank Professor Leydhecker, Dr. Greve and Dr. Raitta, and her staff, the local organizers, for giving us the opportunity to contribute to the advancement of glaucoma research. I wish you all a fruitful, instructive and agreeable meeting.

Prof. Jules François (†)

INTRODUCTION

The European Glaucoma Society was founded in the spring of 1978 at the initiative of Drs François, Leydhecker and Greve. Representatives of most European countries met in Ghent and agreed to create a society that would promote the contacts and exchange of knowledge between European glaucomatologists.

The European Glaucoma Society serves to stimulate glaucoma research and diffuse specific knowledge to general ophthalmologists. The European Glaucoma Society would like to cooperate closely with similar glaucoma organizations in other continents.

The first symposium of the EGS was held in April 1980 in Brighton, England. No proceedings were published. The second symposium took place in May 1984 in Hyvinkää, Finland. A great number of participants enjoyed a well organized scientific programme of attractive quality.

The local organization was in the able hands of Raitta and her colleagues, Raivio and Lehto. The scientific programme was coordinated in Amsterdam where a great amount of work was done by Stella Ompi, secretary to the general secretary.

The contents of the meeting have been summarized in this book. This second symposium of the EGS, which took place in an atmosphere of great enthusiasm and friendship, has shown great promise for the future of the European glaucoma.

The Editors

SUMMARY OF THE SCIENTIFIC PROGRAMME OF THE SECOND SYMPOSIUM OF THE EUROPEAN GLAUCOMA SOCIETY

ERIK L. GREVE

In the section on *Visual Function* Greve opened with an overview of the developments in computer assisted perimetry. Techniques for measurements in the assessment phase were discussed. Analysis of fluctuation is necessary especially in relative defects. The numerical expression of defect volume will be extremely important for the evaluation of progression. Visual fatigue is a phenomenon that may be helpful in detecting early glaucomatous damage and may be a problem insofar as it increases fluctuation. It was stressed that psychological factors are more important in computer assisted perimetry than previously believed and that *semi*-automated procedures may be necessary for at least some glaucoma patients.

Flammer presented evidence that the visual function in glaucomatous disease is affected in two ways: a general diffuse reduction of sensitivity caused by the direct mechanical effect of intraocular pressure (IOP) and local defects caused by circulatory insufficiency. The latter may be caused by vascular risk factors and/or raised IOP. Several papers dealt with the relation between the optic disc and the visual function. Marré found no correlation between optic disc densitometry and VECP. Dimitrakos et al. found no good correlation between change of field loss and change of surface of the rim over the years. Interestingly Krakau found that saucerization of the disc was associated with general reduction of sensitivity whereas local notching was associated with local defects.

A method to quantify the results of computer assisted perimetry was presented by Etienne, while Mertz demonstrated a method using image analysis to display fluctuation and changes in the visual field.

The Humphrey Field Analyzer was introduced by Heijl.

Manual and computer assisted perimetry was performed in congenital glaucoma by Rolando et al. They demonstrated general reduction of sensitivity as an early sign of damage.

Gandolfo et al. showed a rapid screening programme combining static and kinetic automatic techniques.

From the land of Bjerrum came a comparative study on the Bjerrum screen and the Octopus computer assisted perimetry (Thygesen et al.). As expected the tangent screen detected about half of the "absolute defects" detected by the Octopus.

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The section on *Medical Treatment* opened with some basic research reports.

Petounis et al. suggested that osmotic agents reduce IOP by a direct dehydrating effect on the bulbus oculi and not by central neural mechanisms.

The effect of ocular pigmentation on pilocarpine availability was studied by Salminen and Urtti. The same authors measured concentration of epinephrine, pilocarpine and timolol in the different parts of the eye.

The location of β-adrenergic receptors in the cornea and ciliary body (non-pigmented epithelial cells) was studied by Lehto et al.

Palkama et al. described the mechanism of action of adrenergic agonists and $\beta_1 - \beta_2$ antagonists in the rabbit.

The effect of ophthalmic rods containing pilocarpine is comparable to that of pilocarpine eye drops according to Krieglstein et al. Many studies were devoted to the dominating antiglaucomatous drug of the eighties: the β-blockers.

Robert and Hendrickson measured the pallor of the disc in healthy subjects with and without the effect of the β-blockers timolol and pindolol. They could not demonstrate any effect of the drugs on the vascular behavior of the disc.

Propanolol does not seem to have an adrenergic neuronal blocking action according to Fleig and Krieglstein. The long duration of action of β-blockers might be explained by high-affinity binding to pigment cells.

Merté and Stryz compared propanol, timolol, metipropanolol, L-befunolol, befunolol and pindolol. The direct effects on IOP are highest for timolol, metipranolol, L-befunolol and befunolol. The authors concluded that in the long run the effects of these drugs are comparable. Hoskins et al. showed how the use of timolol is beneficial in the treatment of childhood glaucomas.

Pindolol was compared to timolol in a long-term study by Goethals et al. The authors conclude that although the direct effect of timolol is more pronounced than that of pinolol, the long-term effect of both drugs is comparable.

The effect of the addition of timolol to maximal medical therapy was once again shown by Sefić et al.

Krieglstein and Scoville used an eye-irritation score to evaluate carteolol and timolol. Three and ten minutes after application the irritation caused by carteolol and timolol was similar, while immediately after application timolol is somewhat more irritating.

In two studies of Long et al. and Berson et al. the effects of levobunolol were compared to timolol. No significant differences were found.

The section on *Laser and Glaucoma* was opened with a review by Pohjanpelto. The mean success rate of Laser trabeculoplasty (LTP) is 82%. LTP works well in capsular glaucoma, less well in post traumatic glaucoma, and glaucoma secondary to uveitis.

The complications of LTP were discussed. Pohjanpelto reported a success rate of 72% in primary open angle glaucoma at the end of six months and at the end of a longer follow-up period. The long-term results of pseudoexfoliation glaucoma seem to be somewhat less good than the immediate results (76% and 95% respectively).

Cases with a recurring high IOP appeared at a steady rate during the first three years of follow-up.

Deterioration of the visual field was reported to occur in 33% of cases with primary open angle glaucoma and 45% of cases with pseudoexfoliation. There was no evidence of a relation between immediate post-laser IOP rise and visual field deterioration. These high percentages of deterioration require further confirmation.

Holmin and Bauer measured the visual field in 48 eyes before and one month after LTP. These authors found no significant differences before and after LTP.

Traverso et al. described their LTP results: these were better in pseudoexfoliation and pigment dyspersion glaucoma. Out of 113 cases with acceptable automated perimetry, 32 got worse, 19 got better and 62 remained unchanged (according to the criteria of these authors).

Kitazawa et al. varied several LTP parameters. These authors concluded that treatment of the posterior meshwork over 180° is preferable. Teräsvirta et al. made comparable variations of LTP parameters (180° and 360°; anterior and posterior trabecular meshwork) both in primary open angle suspects and pseudoexfoliation glaucoma. These authors stressed the reduction of diurnal variation caused by LTP. They concluded that all four treatment modes used were equally acceptable.

Béchetoille and Jallet described the results of laser burns to the ciliary band, as compared to the trabecular meshwork (180°).

Laser coagulation of the ciliary band seemed to be at least as effective as LTP directed towards the trabecular meshwork. Similar good results of laser coagulation of the ciliary band were reported by Krasnov. It is my personal experience since 1981 that laser treatment of the ciliary band can be as effective as treatment of the meshwork. My colleagues Dake and Bos have demonstrated that coagulations directed to the scleral spur likewise have a good effect.

Ljubojević and Kuljača confirmed earlier findings of LTP: 74.6% of eyes controlled over almost two years.

Honrubia et al. described the beneficial effect of panretinal photocoagulation in central retinal vein occlusion in preventing neovascular glaucoma.

The same group of authors treated 13 eyes of patients after failure of trabeculectomy and obtained a 25% reduction of IOP.

Schrems et al. found a significant dysfunction of the blood-aqueous barrier after neodynium-YAG laser iridotomy which could be prevented by topical indomethacin.

Long-lasting iridotomies were obtained by Brihaye et al. using a neodynium-YAG laser for perforation after precoagulation with an Argon laser.

Schrems et al. recorded IOP levels after neodynium-YAG laser iridotomies and found considerable IOP peaks.

In the section on *Surgical Treatment* Leydhecker presented his views on the indications, techniques and documentation of surgery of glaucoma. He stressed the importance of IOP in the pathogenesis of glaucomatous damage.

The requirements for correct evaluation of the effect of medical treatment were discussed. Patient compliance and the role of adequate information are considered.

Apart from a few cases where surgical treatment is the first choice, surgery is reserved for failures of medical (and laser) treatment. Both a high IOP or a visual field deterioration can be indications for surgery. A field defect close to fixation is no contraindication. As far as the surgical technique is concerned all modifications of trabeculectomy or goniotrephining work as external filtering operations. The author furthermore discusses peripheral iridenclysis, iridectomy, goniotomy, cyclodialysis, cryosurgery and laser treatment. Finally the importance of accurate documentation on preprinted computer sheets is stressed.

Roszíval and Řehák described the scanning electron microscopic effects of Scheie's diathermy and incision in rabbits.

Lambrou and Christakis evaluated those patients that could be followed for at least 10 years after goniotrephination (108 out of 493 operations; 69 patients). The mean IOP rose 2 mm during the follow-up period. At the end of 10 years 13 out of 108 eyes received extra medical treatment. Only three cases showed visual field deterioration, while only seven cases showed a reduction of visual acuity.

Greve et al. reported on a 10-year prospective study of a covered filtering operation. After 10 years almost half of the patients had died (20 out of 47; mean age at the beginning: 66). If an IOP of 21 mm or less and a stable visual field were taken as criteria then 45% of cases were controlled. If additional medical treatment and reoperations were included 93% were controlled. Thirteen out of 29 eyes showed an increase of cataract but only four had to be operated.

Vossen and Neubauer studied 29 eyes with defects close to fixation. They found no deterioration of visual acuity after filtering operations in the majority of cases. In some cases, the "residual visual field slowly melted away".

Modifications of filtering techniques were shown by Nesterov et al. Good results were reported for valve-trabeculotomy in open angle glaucoma and for filtering irido-cycloretraction in angle closure glaucoma. A goniotomy approach to cyclodialysis was reported by Draeger and Wirt, the advantage being the continuous visual control in addition to the use of hyaluronic acid. A similar approach to trabeculotomy also using healon was described by Quintana.

The effects of direct cyclodiathermy both in rabbits and in glaucoma patients were studied by Kontić et al. This method deserves further attention. Another operation for late stage glaucoma was demonstrated by Takáts: a modification of Cohan's filtering corneal trephination. Twelve out of 16 cases were reported successful (75%).

Bordeianu performed trabeculectomy using a corneal approach and showed that in this case the operation does not function, implying that permanent dehiscense of the scleral wound is necessary. He furthermore described the inclusion of a corneal strip under a scleral flat as part of a filtering procedure.

The fifth and last section contains *Miscellaneous* subjects. Clark and Mapstone measured anterior chamber volume after a pilocarpine phenylephrine provocation test in eyes with and without a peripheral iridectomy (p.i.). The anterior chamber volume decreased in the presence of a p.i. The thickness of the lens is the major difference in eyes with unilateral acute angle closure glaucoma as shown by Strasser and Hauff.

The value of limbal anterior chamber depth estimation with the slitlamp for the detection of angle closure glaucoma was illustrated by Alsbirk. Nasotemporal differences in limbal anterior chamber depth may not reflect gonioscopic differences.

Tarkkanen et al. discussed the use of ultrasonographic biometry in congenital glaucoma. Such measurements proved to be of great help in diagnosis and follow-up of this disease and made the indication for surgical intervention easier.

Prevention of amblyopia due to astigmatism in congenital glaucoma is important according to Tsamparlakis et al.

Valle and Kivelä presented a Finnish family with hereditary juvenile glaucoma being autosomally dominent with complex penetrance. The long-term prognosis of patients with pseudoexfoliation glaucoma is not different from those with primary open angle glaucoma as studied by Demailly and Gruber.

Patients with low-tension glaucoma, especially those classified as focal ischemic glaucoma, may have a significantly higher blood viscosity than matched cataract patients. Klaver et al. suggested that increased blood viscosity may be regarded as a risk factor in glaucoma.

Baring of the circumlinear vessels, as a sign of early glaucomatous damage was considered by Rolando et al. They found this sign in 10% of normals, 40% of ocular hypertensives and 88% of glaucomas. The difficulty of evaluating glaucomatous damage in myopic discs was pointed out by Miglior et al.

The aqueous dynamics in spontaneous and traumatic cavernous fistulas were discussed by Varga et al. The normal IOP in traumatic cases is explained by arterial circulatory deficiency. Increased resistance in outflow is attributed to increased episcleral venous pressure. The role of lactic acid concentration in hemorrhagic glaucoma was discussed by Imre et al., explaining also the effect of panretinal photocoagulation.

Kuljača et al. presented an interesting case of secondary glaucoma caused by reactive lymphoid hyperplasia of the conjunctiva and uveal tract, conformed by microscopic findings.

Jerndal illustrated his concept of glaucomatous disease. In this concept congenital glaucoma with recognizable changes of the chamber angle plays an important part (goniodysgenesis). This author favours early surgical treatment.

The features of the chamber angle in glaucoma were studied by Svedbergh et al. They were especially interested in goniodysgenesis and concluded that signs of dysgenesis were more frequently seen in glaucoma patients than in a control group. Pretrabecular membranes were difficult to evaluate.

Finally, Schiødte et al. described their results with panretinal photo-

coagulation in cases of late stage, complicated glaucoma. They found a combination of panretinal photocoagulation and cyclocryothermia to be successful in a number of cases.

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