

Glaucoma Update II

Glaucoma Society of the International
Congress of Ophthalmology
Carmel/California, October 22-27, 1982

Editors

G.K. Kriegstein and W. Leydhecker

With 83 Figures

Springer-Verlag Berlin Heidelberg
New York Tokyo 1983

Professor Dr. G.K. Kriegstein
Professor Dr. Dr. h.c. W. Leydhecker
Universitätsklinik und Poliklinik für Augenkrankheiten
Kopfkllinik
Josef-Schneider-Str. 11
8700 Würzburg

ISBN 3-540-12422-5 Springer-Verlag Berlin Heidelberg New York Tokyo
ISBN 0-387-12422-5 Springer-Verlag New York Heidelberg Berlin Tokyo

Library of Congress Cataloging in Publication Data

International Congress of Ophthalmology (24th : 1982 : Carmel, Calif.)
Glaucoma update II.

Previous Glaucoma update published as: Glaucoma update / International
Glaucoma Symposium, Nara, Japan, 1978, 1979. Bibliography: p. Includes index.
I. Glaucoma--Congresses. I. Kriegstein, G. K. (Günter K.), 1944-. II. Leydhecker,
W. (Wolfgang), 1919-. III. International Glaucoma Symposium (1978: Nara-shi,
Japan)

Glaucoma update. IV. Title. RE87L15 1982 617.7'41 83-4716
ISBN 0-387-12422-5 (U.S.)

This work is subject to copyright. All rights are reserved, whether the whole
or part of the material is concerned, specially those of translation, reprinting,
re-use of illustration broadcasting, reproduction by photocopying machine or
similar means, and storage in data banks. Under § 54 of the German Copyright
Law where copies are made for other than private use a fee is payable to
'Verwertungsgesellschaft Wort', Munich.

© by Springer-Verlag Berlin Heidelberg 1983

Printed in Germany

The use of registered names, trademarks, etc. in this publication, does not
imply, even in the absence of a specific statement, that such names are exempt
from the relevant protective laws and regulations and therefore free for general
use.

Product Liability: The publisher can give no guarantee for information about
drug dosage and application thereof contained in this book. In every individual
case the respective user must check its accuracy by consulting other pharma-
ceutical literature.

Typesetting: Fotosatz Service Weihrauch, Würzburg.

Printing and binding: Offsetdruck Beltz, Hembsbach

2122/3321-543210

Glaucoma Society of the International Congress of Ophthalmology
Carmel/California, October 22-27, 1982



Participants of the committee meeting of the Glaucoma Society of the International Congress of Ophthalmology, Carmel/California, October 22-27, 1982

Table of Contents

Preface	IX
List of Contributors	XI
Protein Phosphorylation in Cultured Human Ciliary Epithelia in Response to Activators of Adenylate Cyclase, Cyclic AMP and Analogues. M. Coca-Prados, K. Kondo, M. Sears	1
Drug Effects on Fluorescein Kinetics. R.F. Brubaker	7
Beta-Adrenergic Agonists and Antagonists: Clinical Pharmacokinetics. S. Mishima, M. Takase, M. Araie, Y. Kitazawa	11
Substance P-like Immunoreactive Nerves in the Anterior Segment of the Eye. R.A. Stone, A.M. Laties, A. McGlinn	15
Ocular Effects of Vanadate. T. Krupin, S.M. Podos, B. Becker	25
The Biology of the Aqueous Humor. J. Herschler, J. Burke	31
Medical and Surgical Alterations in Outflow Facility. A. Bill, B. Svedbergh, K. Ujie, T. Hamanaka	33
Morphological and Biochemical Studies on Cell and Tissue Cultures of Human Trabecular Meshwork. J.W. Rohen, D.O. Schachtschabel, E. Lütjen-Drecoll, M. Rohrbach, K. Berghoff	39
Timolol Maleate and Choroidal Blood Flow. J.T. Ernest, T.K. Goldstick	45
Relationship Between the Technique of Surgical Trabeculectomy and the Final Post-Operative Result. G.L. Spaeth, E.M. Poryzees	53
Laser Iridotomy. H.A. Quigley	59
Corneal Sensitivity and Intraocular Pressure. J. Draeger, R. Winter	63
Disc Haemorrhages - Forerunners of Chronic Glaucoma. C.E.T. Krakau	71
Hemorrhage on the Disc - A Risk Factor in Glaucoma. S.M. Drance	77
Regression of Optic Nerve and Visual Field Defects in Glaucoma. G.L. Spaeth	81
Histology of Human Glaucoma Optic Nerve Damage Compared to Clinical Findings in the Same Eyes. H.A. Quigley	83

The Mechanisms of Damage of the Optic Nerve. D.R. Anderson	89
Is Glaucoma Therapy Useless? W. Leydhecker	95
Contrast Sensitivity and Glaucoma. C.D. Phelps, M.A. Motolko	103
Abnormalities of the Visual System in Ocular Hypertension and Glaucoma: Seeing Beyond Routine Perimetry. A. Atkin, S.M. Podos, I. Bodis-Wollner	107
Colour Vision in Glaucoma. S.M. Drance, R. Lakowski	117
Visual Field Decay in Chronic Glaucoma. C.E.T. Krakau	123
The Value of the Retinal Nerve Fiber Layer Examination in the Diagnosis of Glaucoma. H.A. Quigley	129
The Earliest Finding of Primary Open-Angle Glaucoma (POAG) and the Mode of Progression. K. Iwata	133
The Computer-Perimetric Differentiation of Chronic Glaucoma, Low Tension Glaucoma, and Ischemic Neuropathy. G.K. Kriegstein, E. Gramer	139
Use of Multivariate Analysis in the Prognostication of Ocular Hypertension. Y. Kitazawa, F. Go, S. Shirato, Y. Akiba	145
"Follow-up" Perimetric Study on Primary Open Angle Glaucoma and Ocular Hypertension. I. Azuma	149
Diurnal Pressure Curve in Surgically Treated Congenital Glaucoma in Comparison to Normal Patients of the Same Age Group. N. Calixto, S. Cronemberger Sobrinho, F.J. Moreno	155
Visual Sensitivity to Intraocular Pressure. M.E. Langham	161
Ultrasonographic Echometry in the Control of Congenital Glaucoma. C.A. de Carvalho, A.J. Betinjane	169
Ocular Echometry and the Diagnosis of Congenital Glaucoma and its Evolution. R. Sampaoli	175
Prognosis of Goniotomy in Primary Infantile Glaucoma (Trabeculodysgenesis). R.N. Shaffer	185
Developmental Glaucoma. H.D. Hoskins Jr.	189
Bubble-free Gonioscopy. R. Smith	195
Subject Index	197

Preface

The second Committee Meeting of the Glaucoma Society of the International Congress of Ophthalmology was held in Carmel Valley/California from October 22-27, 1982. Traditionally this meeting was closed and preceded the International Congress of Ophthalmology in San Francisco. A group of roughly 80 experts on glaucoma - active members of the committee and invited guests - exchanged latest scientific experiences on the progress in pathophysiology, diagnosis and treatment of the glaucomas. The aim of the meeting was to provide quite informal presentations grouped around main topics and ample, lively discussions.

The scientific and local organization was in the hands of Jack Hetherington Jr./San Francisco and Stephen M. Drance/Vancouver. It is the sincere wish of the society to express warmest thanks to Valerie Hetherington who took in a most charming and efficient way much of the burden of the local organization.

The idea of pre-circulation of all scientific presentations 2-3 months before the meeting to all participants and guests proved to be effective with respect to fruitful and stimulating discussions at the site of the meeting.

We thank all participants for their co-operation in sending their manuscripts in time.

The society is indebted to Chibret Int. Pharmaceutical Company for generous support of this publication.

Würzburg, 15. Febr. 1983

G.K. Krieglstein
W. Leydhecker

List of Contributors

Anderson D.R., Bascom Palmer Eye Institute, University of Miami, School of Medicine, P.O. Box 016880, Miami, Florida 33101, USA

Akiba, Y., Institute of Medical Electronics, Faculty of Medicine, University of Tokyo, Tokyo, Japan

Araie, M., Department of Ophthalmology, Univ. of Tokyo, School of Medicine, 7-3-1, Hongo, Bunkyo-ku, Tokyo 113, Japan

Atkin, A., The Mount Sinai Medical Center, Dept. of Ophthalmology, One Gustave L. Levy Place, New York/NY 10029, USA

Azuma, I., Dept. of Ophthalmology, Osaka Medical College, 2-7 Daigakuchō, Takatsuki/Osaka, 569, Japan

Becker, B., Department of Ophthalmology, Washington Univ., School of Medicine, 660 South Euclid Avenue, St. Louis, Missouri 63110, USA

Berghoff, K., Institut für Physiologie und Chemie, Philipps-Universität, D-3550 Marburg/Lahn, Federal Republic of Germany

Betinjane, A.J., Clinica Oftalmologica, Rua Prof. Artur Ramos, 96-8.0 And., São Paulo-01454, Brasil

Bill, A., Department of Physiology and Medical Biophysics, Box 573, S-751 23 Uppsala, Sweden

Bodis-Wollner, I., The Mount Sinai Medical Center, Dept. of Ophthalmology, One Gustave L. Levy Place, New York/NY 10029, USA

Brubaker, R.F., Mayo Clinic, 200 First Street S.W., Rochester, MN 55905, USA

Burke, J., Department of Ophthalmology, University of Arizona, School of Medicine, Tucson, Arizona

Calixto, N., Hospital São Geraldo, Faculdade de Medicina, Universidade de Minas Gerais, Belo-Horizonte, 30 000, Brasil

Carvalho, C.A., Clinica Oftalmologica, Rua Prof. Artur Ramos, 96-8.0 And., São Paulo-01454, Brasil

Coca-Prados, M., Dept. of Ophthalmology and Visual Science, Yale University, School of Medicine, 310 Cedar Street, P.O. Box 3333, New Haven, CT 06510, USA

- Cronemberger Sobrinho, S., Hospital Sao Geraldo, Faculdade de Medicina, Universidade de Minas Gerais, Belo-Horizonte, 30 000, Brasil
- Draeger, J., Universitäts-Augenklinik, Martinistraße 52, 2000 Hamburg 20, Federal Republic of Germany
- Drance, S.M., Univ. of British Columbia and Vancouver General Hospital, Dept. of Ophthalmology, 2577 Willow Street, Vancouver, B.C. V5Z 3N9, Canada
- Ernest, J.T., Department of Ophthalmology, University of Illinois at Chicago, Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, Illinois 60612, USA
- Go, F., Institut of Medical Electronics, Faculty of Medicine, University of Tokyo, Tokyo, Japan
- Goldberg, Anna V., Glaucoma Service and Research Laboratories, Wills Eye Hospital, Thomas Jefferson University, Philadelphia, PA 19107, USA
- Goldberg, William A., Glaucoma Service and Research Laboratories, Wills Eye Hospital, Thomas Jefferson University, Philadelphia, PA 19107, USA
- Goldstick, T.K., Department of Chemical Engineering, Northwestern University, Evanston, Illinois 60201, USA
- Gramer, E., Universitäts-Augenklinik Würzburg, Josef-Schneider-Straße 11, D-8700 Würzburg, Federal Republic of Germany
- Hamanaka, T., Department of Ophthalmology, School of Medicine, Gunma University, Maebashi, Japan
- Herschler, J., Department of Ophthalmology, University of Arizona, School of Medicine, Tucson, Arizona
- Hoskins, H.D., Dept. of Ophthalmology, Glaucoma Clinic, Rm. A-775, San Francisco/Cal. 94143, USA
- Iwata, K., Dept. of Ophthalmology, Niigata Univ., 951 Niigata-City, Asahimachi 1, Japan
- Kitazawa, Y., School of Medicine, Dept. of Ophthalmology, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, Japan
- Kondo, K., Dept. of Ophthalmology and Visual Science, Yale University, School of Medicine, 310 Cedar Street, P.O. Box 3333, New Haven, CT 06510, USA
- Krakau, C.E.T., University Eye Clinic, Dept. of exp. Ophthalmology, S-22 185 Lund, Sweden
- Kriegstein, G.K., Universitäts-Augenklinik Würzburg, Josef-Schneider-Straße 11, D-8700 Würzburg, Federal Republic of Germany
- Krupin, T., Department of Ophthalmology, Washington Univ., School of Medicine, 660 South Euclid Avenue, St. Louis, Missouri 63110, USA
- Lakowski, R., Univ. of British Columbia and Vancouver General Hospital, Dept. of Ophthalmology, 2577 Willow Street, Vancouver, B.C. V5Z 3N9, Canada

Langham, M.E., The Wilmer Institute, Johns Hopkins University, Baltimore, Maryland 21205,
USA

Lates, A.M., Department of Ophthalmology, University of Pennsylvania, Scheie Eye Institute,
Philadelphia, PA 19104, USA

Leydhecker, W., Universitäts-Augenklinik Würzburg, Josef-Schneider-Straße 11, D-8700
Würzburg, Federal Republic of Germany

Lütjen-Drecoll, E., Anatomisches Institut der Universität Erlangen-Nürnberg, Krankenhaus-
straße 9, D-8520 Erlangen, Federal Republic of Germany

McGlinn, A., Department of Ophthalmology, University of Pennsylvania, Scheie Eye Institute,
Philadelphia, PA 19104, USA

Mishima, S., Department of Ophthalmology, Univ. of Tokyo, School of Medicine, 7-3-1,
Hongo, Bunkyo-ku, Tokyo 113, Japan

Moreno, F.J., Hospital São Geraldo, Faculdade de Medicina, Universidade de Minas Gerais,
Belo-Horizonte, 30 000, Brasil

Motolko, M.A., Dept. of Ophthalmology, Univ. of Iowa, Iowa City/Iowa 52242, USA

Phelps, C.D., Dept. of Ophthalmology, Univ. of Iowa, Iowa City/Iowa 52242, USA

Podos, S.M., The Mount Sinai Medical Center, Dept. of Ophthalmology, One Gustave L.
Levy Place, New York/NY 10029, USA

Poryzees, E.M., Glaucoma Service and Research Laboratories, Wills Eye Hospital, Thomas
Jefferson University, Philadelphia, PA 19107, USA

Quigley, H.A., The Wilmer Institute, Johns Hopkins University, Ophthalmol. Research Unit.,
Baltimore/Maryland 21205, USA

Rohen, J.W., Anatomisches Institut der Universität Erlangen-Nürnberg, Krankenhaus-
straße 9, D-8520 Erlangen, Federal Republic of Germany

Rohrbach, M., Anatomisches Institut der Universität Erlangen-Nürnberg, Krankenhaus-
straße 9, D-8520 Erlangen, Federal Republic of Germany

Sampaolesi, R., Paraná 1239.1, Buenos Aires, Argentina

Schachtschabel, D.O., Institut für Physiologie und Chemie, Philipps-Universität, D-3550
Marburg/Lahn, Federal Republic of Germany

Sears, M., Dept. of Ophthalmology and Visual Science, Yale University, School of Medicine,
310 Cedar Street, P.O. Box 3333, New Haven, CT 06510, USA

Shaffer, R.N., Univ. of California, Glaucoma Clinic A-775, San Francisco, Cal. 94143, USA

Shirato, S., Institute of Medical Electronics, Faculty of Medicine, University of Tokyo,
Tokyo, Japan

Smith, R., Moorfields Eye Hospital, City Road, London EC1V2PD, England

Spaeth, G.L., Glaucoma Service and Research Laboratories, Wills Eye Hospital, Thomas Jefferson University, Philadelphia, PA 19107, USA

Stone, R.A., Department of Ophthalmology, University of Pennsylvania, Scheie Eye Institute, Philadelphia, PA 19104, USA

Svedbergh, B., Department of Physiology and Medical Biophysics, Box 573, S-751 23 Uppsala, Sweden

Takase, M., Department of Ophthalmology, Univ. of Tokyo, School of Medicine, 7-3-1, Hongo, Bunkyo-ku, Tokyo 113, Japan

Ujie, K., Department of Ophthalmology, School of Medicine, Gunma University, Maebashi, Japan

Winter, R., Universitäts-Augenklinik, Martinistraße 52, 2000 Hamburg 20, Federal Republic of Germany