

THE AMERICAN OPHTHALMOLOGICAL SOCIETY THESIS: A 50-YEAR SURVEY

BY **Kirk R. Wilhelmus MD PhD***

Purpose: To update the AOS thesis registry (Trans Am Ophthalmol Soc 1987;85:647) and to present a bibliometric analysis of theses published in the Transactions over the past 50 years.

Methods: After tabulating thesis title, author, publication year, and length, I categorized research topics into practice-emphasis areas then downloaded biographical information about members. Descriptive statistics and relational graphics examined thesis publication rate, report length, research theme, and publication intervals since medical school or board certification.

Results: The Transactions published 408 AOS theses between 1954 and 2003 (excluding two monograph supplements), an average rate of 8 per year that peaked during the early 1980s. The median length was 40 printed pages, with 68% of published theses filling 50 pages or less in the Transactions. Thesis length varied for some research areas: glaucoma theses were shorter than average, and those on oculoplastics and orbital disease tended to be longer. Retinal disease was consistently the most common thesis topic, while refractive surgery emerged during the past decade as an increasingly prevalent field of study. The median period between medical school graduation and AOS thesis publication was 20 years (interquartile range, 17—25 years), and the median time since board certification was 13 years (interquartile range, 10—18 years); these intervals had average increases of 3 and 5 years, respectively, in recent decades.

Conclusion: Publication patterns of AOS theses regularly followed requisite standards of experience and editorial specifications. Thesis authors studied diverse subjects of ophthalmic science and art that reflect the interdisciplinary scope of the Society.

TEAR SUBSTITUTES: NEW CHALLENGES TO PROTECT THE OCULAR SURFACE

BY **Penny A. Asbell MD***

Purpose: The use of artificial tears has been described for decades, yet the ideal substitute still eludes us. Understanding the past, present and future of artificial tears is important to formulating new tear substitutes to protect the ocular surface. Normal tear composition is complex and fulfills several functions. Tear substitutes are usually classified by chemical composition, biophysical and biochemical properties and additives. The role of the FDA in drug development and in particular the monograph for over the counter (OTC) drugs is outlined.

Methods: Historical review of tear substitutes is reviewed and the United States regulatory history, especially in OTC monograph development is outlined. New OTC products introduced within the last few years are described and the clinical trials used to demonstrate not only fulfillment of OTC regulatory requirements, but also improved ocular surface health.

Results: New products will need to go beyond OTC requirements and demonstrate ability to relieve ocular discomfort and improved ocular surface health.

Conclusion: Despite efforts to develop pharmaceutical approaches to dry eye treatment, artificial tear substitutes will continue to be the mainstay of treatment for ocular surface disease. Future requirements for new products are suggested.

Dr. Asbell is currently on the Speaker's Bureau for Alcon, Allergan, and Novartis.

POST-LASIK REFERRALS TO A CORNEA SERVICE: WHO IS UNHAPPY AND WHY?

BY **Christopher J. Rapuano MD***, Juliana F. Freitas MD, Fernando T. Komatsu MD, Anna Park MD, Kristin M. Hammersmith MD, **Peter R. Laibson MD**, and Elisabeth J. Cohen MD

Purpose: To report on the post-operative laser in situ keratomileusis (LASIK) referrals to a tertiary care Cornea Service from 1996 through 2004.

Methods: Retrospective case series of 217 consecutive patients referred after having LASIK elsewhere. The reasons for and source of referral, diagnosis, and treatment options were recorded.

Results: Sixty-one patients (28%) were self-referred, 88 (41%) were referred by their surgeon and 68 (31%) were referred by another doctor. The most common diagnoses were irregular astigmatism in 61% of the cases, dry eye syndrome in 26%, striae in the flap in 18%, and intraoperative flap complications in 16%. Less common diagnoses included corneal ectasia in 6.4% and corneal infiltrate/ulcer in 1.4% of cases. Medical therapy, including punctal plugs, was suggested in 301 cases (84%). Contact lenses were offered in 136 eyes (38%), and spectacles were an option in 66 eyes (18%). A surgical option was recommended in 140 eyes (39%).

These options included enhancement or retreatment in 75 eyes (21%), removal of epithelial ingrowth in 20 eyes (5.6%), suturing of dehisced flaps or free caps in three eyes (0.8%) and penetrating keratoplasty in 15 eyes (5%).

Conclusion: While the vast majority of patients are satisfied after LASIK, some are not and seek additional opinions. The fact that only 41% were referred by their surgeons indicates that many patients are frustrated enough with their results to go around their doctor for more information. Many of these patients were reluctant to discuss their unhappiness with their surgeon. These patients are often not counted in series of patient satisfaction as they are lost to follow-up. Refractive surgeons need to understand who is seeking second opinions and why, before we can begin to address their issues.

NOMOGRAM CHANGES FOLLOWING LIGHT TOUCH CK

BY Penny A. Asbell MD*

Purpose: To assess the nomogram changes required when Light Touch 1 mm compression technique CK is performed instead of conventional CK.

Methods: In the conductive keratoplasty (CK) procedure, radiofrequency energy is delivered into the corneal stroma through a 450 x 90 micron probe tip that produces spots of contracted corneal collagen deep in the corneal stroma. A ring of treatment spots in the corneal periphery steepens the central cornea. Experience has shown that tip alignment, diameter of the treatment spots, the optical zone (OZ) of the spots, and the pressure exerted on the probe tip significantly affect the amount of refractive change obtained with the CK procedure. In this study, we compared the refractive effect of CK using a Light Touch 1 mm compression technique with that of conventional CK. The number of spots (8 or 16), the optical zone (7 or 8 mm), and the exerted pressure (1 mm, 1 to 5 mm, or 5 to 7 mm dimple made on cornea) were the variables examined.

Results: Eight spot treatment at the 7 mm OZ with Light Touch CK produced a 1.75 D myopic shift compared with a 0.75 D shift from conventional CK. Light Touch CK procedures induced less astigmatism. However, compared with conventional CK treatment, there was a greater potential for compromise of uncorrected distance vision immediately post-op.

Conclusion: Light Touch CK was found to have a more robust effect than conventional CK. Currently, surgeons must develop their own nomogram for performing Neutral Pressure CK.

Dr. Asbell was Investigator for CK Clinical Trials and is now on the Speaker's Bureau.
The information in this poster includes an unlabeled use of a drug or device.

PREDICTED IMPACT OF TWO COMBINATION GLAUCOMA MEDICATIONS (TRAVOPROST 0.004%/TIMOLOL 0.5% VERSUS LATANOPROST 0.005%/TIMOLOL 0.5% COMBINATION MEDICATIONS) ON VISUAL FIELD DEFICIT PROGRESSION AND COSTS AMONG GLAUCOMA SUBJECTS

BY Jordana K. Schmier MA, Michael T. Halpern MD PhD, Alan L. Robin MD*, and Dave Covert MBA

Purpose: We compared differences associated with the use of the travoprost 0.004%/timolol 0.5% combination and the latanoprost 0.005%/timolol 0.5% combination on both progression of perimetric loss over time and associated costs.

Methods: Patients with primary open-angle glaucoma or ocular hypertension were randomly assigned to one of two arms in a 12-month, double masked study evaluating two combination medications: travoprost 0.004%/timolol 0.5% or latanoprost 0.005%/timolol 0.5%. Two hundred and one patients received travoprost 0.004%/timolol 0.5% and 197 received latanoprost 0.005%/timolol 0.5%. We applied algorithms found in published studies linking intraocular pressure (IOP) control to visual field progression and calculated the likelihood of visual field deterioration based on IOP data. This was used to estimate differences in medical care costs.

Results: The average IOP was lower for patients receiving travoprost 0.004%/timolol 0.5% than for patients receiving latanoprost 0.005%/timolol 0.5% (16.6 versus 17.2, $P < 0.05$). Travoprost 0.004%/timolol 0.5% treated patients had a smaller predicted change in visual field defect score (VFDS) than latanoprost 0.005%/timolol 0.5% treated patients, however, these results were not significant. Medical care costs would likely be higher for latanoprost 0.005%/timolol 0.05% patients.

Conclusion: Studies have been published that provide algorithms linking IOP control to changes in visual fields. Treatment with travoprost 0.004%/timolol 0.5% was associated with potential decreased visual field progression and cost savings although this difference was not statistically significant.

Alan L. Robin MD is a consultant to Alcon.

AMIODARONE OPTIC NEUROPATHY: CAUSE AND EFFECT NOT PROVEN

BY **Brian R. Younge MD***

Purpose: Amiodarone has been implicated as a cause of ischemic optic neuropathy.

Methods: Review of world literature and Mayo Clinic cases.

Results: There are many case reports of ischemic optic neuropathy in patients taking amiodarone for cardiac arrhythmias. While suggestive of a cause and effect relationship, there is no proof of such an association.

Conclusion: Ischemic optic neuropathy that occurs while taking amiodarone is not necessarily related to taking this medication. Proof of a statistical correlation does not exist, and may be impossible to obtain. Conclusions about a particular medication or treatment need to be supported by prospective, carefully controlled studies that are conducted with age-matched normals or subjects with similar conditions. We are seeing examples of sensational reports of complications in the news from studies that lack credibility, and these are damaging to patients that need the medication, and cause enormous financial upheavals in the drug industry.

* Presenter

Bold type indicate AOS member.