Contents

Preface v

Contributors xi

Chapter 1
Functional anatomy of ocular surface and tear film and pathophysiological developments in the course of evaporative dry eye 1
Friedrich P. Paulsen

Chapter 2
Classification of ocular surface disease 11
Friedrich E. Kruse

Chapter 3
Definition and classification of dry eye disease 21
Michael A. Lemp, Jose M. Benitez-del-Castillo

Chapter 4
The epidemiology of dry eye disease 27
Kelly K. Nichols, Katherine A. Weibel

Chapter 5
Discrimination of subtypes of dry eye disease: aqueous tear-deficient dry eye and evaporative dry eye 33
Maurizio Rolando

Chapter 6
The clinical utility of objective tests (biomarkers) 41
Michael A. Lemp

Chapter 7
Tear dynamics and dry eye disease 47
Norihiko Yokoi, Georgi As. Georgiev

Chapter 8
The role of inflammation, inflammatory cytokines and ocular surface markers in dry eye disease 55
Pasquale Aragona, Laura Rania, Domenico Puzzolo

Chapter 9
The effect of dry eye disease on vision and its implications for cataract and refractive surgery 69
Richard Chu, Mujjtaba A. Qazi, Jay S. Pepose

Chapter 10
Contact lens-related dry eye disease 77
Heiko Pult, Jason J. Nichols

Chapter 11
Dry eye disease and glaucoma 89
Christophe Baudouin

Chapter 12
Sjögren's syndrome and other causes of cicatrizing conjunctivitis 95
Saaeha Rauz, Geraint P. Williams, Valerie P. Saw

Chapter 13
Graft-versus-host disease 117
Hasanain Shikari, Reza Dana

Chapter 14
Computer vision syndrome 125
David E. Wang, John D. Awad, Richard W. Yee

Chapter 15
Anterior blepharitis 133
Jose M. Benitez-del-Castillo, Pedro Arriola-Villalobos, David Diaz-Valle, Michael A. Lemp

Chapter 16
Episcleritis, scleritis, and peripheral ulcerative keratitis 139
Maite Sainz de la Maza

Chapter 17
Chemical and thermal injuries of the eye 149
Roswell R. Pfister

Chapter 18
Anterior corneal dystrophies and recurrent corneal erosion syndrome 157
Arturo E. Grau, Elío Díez-Feijóo, Juan A. Durán

Chapter 19
Pinguecula and pterygium 173
David Diaz-Valle, Rosalia Mendez-Fernandez, Pedro Arriola-Villalobos, Maria T. Iradier, Jose M. Benitez-del-Castillo

Chapter 20
Ocular surface tumors 181
Rosario Touriño, Maria Lopez-Valladares, Teresa Rodríguez-Ares

Chapter 21
Conjuntivochalasis, lymphangiectasia and conjunctival concretions 191
Stefano Barabino, Cristiana Valente, Eszter Fodor, Carlo Enrico Traverso

Chapter 22
Infectious conjunctivitis and keratitis 195
Eric Gabison, Serge Doan, Thanh Hoang-Xuan

Chapter 23
Ocular allergy 203
Stefano Bonini, Flavio Mantelli

Chapter 24
Limbal stem cell deficiency 209
Takashi Kojima, Murat Dogru

Chapter 25
Superior limbic keratoconjunctivitis 215
Javier Celis Sánchez, Diana Mesa, Eva Avendaño, Fernando Gonzalez del Valle

Chapter 26
Neurotrophic keratoconjunctivitis 221
Alessandro Lambiase, Marta Sacchetti

Chapter 27
Mechanical causes of ocular surface disease 227
David H. Verity, J. Richard O. Collin

Chapter 28
Artificial tear substitutes 235
Nora Khatib, Penny A. Asbell

Chapter 29
Anti-inflammatory therapy for dry eye disease: rationale and strategy 243
John D. Sheppard, Niraj S. Shah, Giovanni DiSandro, Jr., Brianne Anthony

Chapter 30
Blood-derived eye drops 257
Francisco C. Figueiredo, Oliver J. Baylis

Chapter 31
Secretagogues, mucolytics and anticollagenolytics for dry eye disease treatment 263
Eduardo M. Rocha, Ana P. Cotrim, Davi Lazarini Marques, Peter S. Reinach, Monica Alves

Chapter 32
Immunosuppressants and biologic therapy 267
Cheryl A. Arcinue, Diana Isabel Pachón Suárez, C. Stephen Foster

Chapter 33
Hormonal therapies 275
Austin K. Mircheff, Samuel C. Yiu

Chapter 34
Therapeutic contact lenses 285
Perry Rosenthal

Chapter 35
Topical antibiotic, antifungal, and antiviral drugs 291
Terry O'Brien

Chapter 36
Anti-allergic treatment strategies 301
Andrea Leonardi

Chapter 37
Lacrimal punctal occlusion 311
Stefan Schrader, Frank H. W. Tost, Gerd Geerling

Chapter 38
Bioadhesives 317
Jorge L. Alio, M. Emilia Mulet

Chapter 39
The role of amniotic membrane for managing dry eye disease 325
Hosam Sheha, Scheffer C. G. Tseng

Chapter 40
Sequential sectorial conjunctival epitheliectomy and superficial keratectomy 331
Jose Güell, Oscar Gris, Diego Aristizabal, Daniel Elies, Felicidad Manero, Merce Morral

Chapter 41
Phototherapeutic keratectomy 341
Miguel J. Maldonado

Chapter 42
Autologous limbal transplant and allogenic limbal transplant 359
Tetsuya Kawakita, Kazuo Tsubota

Chapter 43
Keratoprosthesis 367
Borja Salvador Culla, Claes H. Dohlman

Chapter 44
Future prospects and trends in the diagnosis and treatment of dry eye disease 375
Jose M. Benitez-del-Castillo, Rocío Herrero-Vanrell, Michael A. Lemp

Appendix
Diagnostic algorithms for ocular surface disease 383

Index 385