

Supplemental file 2. Clustering of the 76 included studies based on author names, site of recruitment, trial names, period of recruitment and references to other studies*

Cluster number	Publication year	Source of study population	Case series	Comparative case series	Cohort study	Case-control studies	Randomized controlled trials
1	1993	L.V. Prasad Eye Institute, Hyderabad, India	[1]				
2	1998-2018	Dr Rajendra Prasad Centre for Ophthalmic Sciences, New Delhi, India	[2], [3], [4]				
3	1999	Hôpital Saint Antoine, Paris, France	[5]				
4	2000	Augenklinik der RWTH Aachen, Aachen, Germany	[6]				
5	2002	Federal University of Uberlândia, Uberlândia, Brazil	[7]				
6	2002	University of Erlangen-Nürnberg, Erlangen, Germany					[8]
7	2002-2004	Tokyo Dental College, Tokyo, Japan				[9]	[10]
8	2004	Ege University Hospital, Izmir, Turkey				[11]	
9	2007-2018	King Khaled Eye Specialist Hospital, Riyadh, Saudi Arabia	[12], [13] , [14]			[15]	
10	2008-2014	Toronto Western Hospital, Toronto, Canada ; Yonge Eglinton Laser Eye Center, Toronto, Canada	[16]			[17], [18], [19], [20], [21], [22], [23]	
11	2009	Wills Eye Hospital, Philadelphia, PA, USA				[24]	
12	2009	Auckland City Hospital and Eye Institute, Auckland, New Zealand	[25]				
13	2009	Manchester Royal Eye Hospital, Manchester, UK (through the UK Transplant database)	[26]				
14	2009-2015	Price Vision Group, Indianapolis, IN, USA; Gorovoy Eye Specialists, Fort Myers, FL, USA	[27]			[28], [29]	[30], [31]
15	2010	The University of Texas Southwestern Medical Center, Dallas, TX, USA	[32]				
16	2010	Dr. Lütfi Kirdar Kartal Training and Research Hospital, Istanbul, Turkey	[33]				
17	2010	University of Iowa Hospitals and Clinics, Iowa City, IA, USA	[34]				
18	2011	Eskişehir Osmangazi University Medical Faculty, Eskişehir, Turkey	[35]				
19	2012	Cornea Eye Institute, Beverly Hills, California, CA, USA				[36]	
20	2012	Affiliated Hospital of Medical College Qingdao University, Qingdao Shi, China				[37]	
21	2012	St. James's University Hospital, Leeds, UK				[38]	
22	2012	Keio University School of Medicine, Tokyo, Japan				[39]	
23	2012-2019	Singapore National Eye Center, Singapore, Asia; through the Singapore Corneal Transplant Study	[40], [41]	[42], [43]		[44], [45], [46], [47]	
24	2013	University of Düsseldorf, Düsseldorf, Germany	[48]				
25	2013	Tel Aviv Sourasky Medical Center; and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel				[49]	
26	2013	Doheny Eye Institute, Los Angeles, Californië, Verenigde Staten				[50]	
27	2013	Sir Run Run Shaw Institute of Clinical Medicine of Zhejiang University, Hangzhou, China				[51]	
28	2013-2015	Charité – Universitätsmedizin Berlin, Berlin, Germany	[52], [53]			[54]	
29	2014	Haydarpasa Numune Education and Research Hospital, İstanbul, Turkey; İstanbul Medipol University, School of Medicine, İstanbul, Turkey				[55]	
30	2014	Hadassah-Hebrew University Medical Center, Jerusalem, Israel	[56]				
31	2014	Dr. Ashok Sharma's Cornea Centre, Chandigarh, India	[57]				
32	2015	General Hospital of Shenyang Military Area Command, Shenyang, China					[58]
33	2015	Cantonal Hospital of Lucerne, Lucerne, Switzerland				[59]	
34	2015	The Jules Stein Eye Institute, David Geffen School of Medicine, Los Angeles, CA, USA				[60]	
35	2016	Quinze-Vingts National Eye Hospital, Paris, France				[61]	
36	2016	Juntendo University hospital, Tokyo, Japan				[62]	
37	2016	Sydney Eye Hospital, Sydney, Australia				[63]	
38	2016	Ivey Eye Institute in London, Canada				[64]	
39	2016-2017	University of Cologne, Cologne, Germany				[65], [66]	
40	2017	Cleveland Clinic, Cleveland, Ohio, OH, USA				[67]	
41	2017	Dhahran Eye Specialist Hospital, Dhahran, Saudi Arabia				[68]	
42	2017	Adana Numune Training and Research Hospital, Adana, Turkey; Ankara Training and Research Hospital, Ankara, Turkey				[69]	
43	2017	Sightline Ophthalmic Associates, Pittsburgh, PA, USA				[70]	
44	2017	University of Muenster Medical Center, Muenster, Germany				[71]	
45	2017	Izmir Bozyaka Training and Research Hospital, Izmir Turkey; Kartal Training and Research Hospital, İstanbul, Turkey					[72]
46	2018	Ankara Training and Research Hospital, Ankara, Turkey; Ağrı State Hospital, Ağrı, Turkey				[73]	
47	2018	The Jules Stein Eye Institute, David Geffen School of Medicine, Los Angeles, CA, US; American Academy of Ophthalmology, San Francisco, California, CA, USA; through Centers for Medicare & Medicaid Services (CMS).					[74]
48	2018	Swami Rama Himalayan University, Jolly Grant, Dehradun, Uttarakhand, India				[75]	
49	2018	Complejo Hospitalario La Mancha Centro, Ciudad Real, Spain				[76]	

*Each number between brackets represents a study corresponding with the reference list

References

1. Sekhar GC, Vyas P, Nagarajan R, et al. Post-penetrating keratoplasty glaucoma. *Indian J Ophthalmol*. 1993;41:181-184.
2. Sihota R, Sharma N, Panda A, et al. Post-penetrating keratoplasty glaucoma: risk factors, management and visual outcome. *Aust N Z J Ophthalmol*. 1998;26:305-309.
3. Sharma N, Jain M, Sehra S V, et al. Outcomes of therapeutic penetrating keratoplasty from a tertiary eye care centre in northern India. *Cornea*. 2014;33:114-118.
4. Srujana D, Kaur M, Urkude J, et al. Long-term Functional and Anatomic Outcomes of Repeat Graft After Optically Failed Therapeutic Keratoplasty. *Am J Ophthalmol*. 2018;189:166-175.
5. Borderie VM, Touzeau O, Bourcier T, et al. The triple procedure: in the bag placement versus ciliary sulcus placement of the intraocular lens. *Br J Ophthalmol*. 1999;83:458-462.
6. Redbrake C, Arend O. Glaucoma following keratoplasty. [German] TT - Hornhauttransplantation und glaukom. *Ophthalmologe*. 2000;97:552-556.
7. Franca ET, Arcieri ES, Arcieri RS, et al. A study of glaucoma after penetrating keratoplasty. *Cornea*. 2002;21:284-288.
8. Seitz B, Langenbucher A, Nguyen NX, et al. Long-term follow-up of intraocular pressure after penetrating keratoplasty for keratoconus and Fuchs' dystrophy: Comparison of mechanical and excimer laser trephination. *Cornea*. 2002;21:368-373.
9. Shimazaki J, Shinozaki N, Shimmura S, et al. Efficacy and safety of international donor sharing: a single-center, case-controlled study on corneal transplantation. *Transplantation*. 2004;78:216-220.
10. Shimazaki J, Shimmura S, Ishioka M, et al. Randomized clinical trial of deep lamellar keratoplasty vs penetrating keratoplasty. *Am J Ophthalmol*. 2002;134:159-165.
11. Egrilmez S, Sahin S, Yagci A. The effect of vernal keratoconjunctivitis on clinical outcomes of penetrating keratoplasty for keratoconus. *Can J Ophthalmol*. 2004;39:772-777.
12. Al-Mohaieed M, Al-Shahwan S, Al-Torbak A, et al. Escalation of glaucoma therapy after penetrating keratoplasty. *Ophthalmology*. 2007;114:2281-2286.
13. Waggoner MD, Ba-Abbad R. Penetrating keratoplasty for keratoconus with or without vernal keratoconjunctivitis. *Cornea*. 2009;28:14-18.
14. Waggoner MD, Ba-Abbad R, Al-Mohaieed M, et al. Postoperative complications after primary adult optical penetrating keratoplasty: prevalence and impact on graft survival. *Cornea*. 2009;28:385-394.
15. Khairallah A. Descemet stripping automated endothelial keratoplasty (DSAEK) versus repeat penetrating keratoplasty (PKP) to manage eyes with failed corneal graft. *Ann Saudi Med*. 2018;38:36-41.
16. Kaiserman I, Bahar I, Rootman DS. Corneal wound malapposition after penetrating keratoplasty: an optical coherence tomography study. *Br J Ophthalmol*. 2008;92:1103-1107.
17. Bahar I, Kaiserman I, McAllum P, et al. Comparison of posterior lamellar keratoplasty techniques to penetrating keratoplasty. *Ophthalmology*. 2008;115:1525-1533.
18. Bahar I, Kaiserman I, Srinivasan S, et al. Manual top hat wound configuration for penetrating keratoplasty. *Cornea*. 2008;27:521-526.
19. Kaiserman I, Bahar I, McAllum P, et al. Suture-assisted vs forceps-assisted insertion of the donor lenticula during Descemet stripping automated endothelial keratoplasty. *Am J Ophthalmol*. 2008;145:986-990.
20. Bahar I, Kaiserman I, Sansanayudh W, et al. Busin Guide vs Forceps for the Insertion of the Donor Lenticule in Descemet Stripping Automated Endothelial Keratoplasty. *Am J Ophthalmol*. 2009;147:220-226 e1.
21. Kaiserman I, Bahar I, Slomovic AR, et al. Half top hat wound configuration for penetrating keratoplasty: 1-year results. *Br J Ophthalmol*. 2009;93:1629-1633.
22. Mashor RS, Rootman DB, Bahar I, et al. Outcomes of deep anterior lamellar keratoplasty versus intralase enabled penetrating keratoplasty in keratoconus. *Can J Ophthalmol*. 2011;46:403-407.
23. Shehadeh Mashor R, Bahar I, Rootman DB, et al. Zig Zag versus Top Hat configuration in IntraLase-enabled penetrating keratoplasty. *Br J Ophthalmol*. 2014;98:756-759.
24. Cohen EJ, Yildiz EH, Hammersmith KM, et al. Steroid-induced intraocular pressure elevation or glaucoma after penetrating keratoplasty in patients with keratoconus or Fuchs dystrophy. *Cornea*. 2009;28:759-764.
25. Fan JC, Chow K, Patel D V, et al. Corticosteroid-induced intraocular pressure elevation in keratoconus is common following uncomplicated penetrating keratoplasty. *Eye*. 2009;23:2056-2062.
26. Rahman I, Carley F, Hillarby C, et al. Penetrating keratoplasty: indications, outcomes, and complications. *Eye*. 2009;23:1288-1294.
27. Vajarnant TS, Price MO, Price FW, et al. Visual acuity and intraocular pressure after Descemet's stripping endothelial keratoplasty in eyes with and without preexisting glaucoma. *Ophthalmology*. 2009;116:1644-1650.
28. Price MO, Bidros M, Gorovoy M, et al. Effect of incision width on graft survival and endothelial cell loss after Descemet stripping automated endothelial keratoplasty. *Cornea*. 2010;29:523-527.
29. Chaurasia S, Price Jr FW, Gunderson L, et al. Descemet's membrane endothelial keratoplasty: Clinical results of single versus triple procedures (combined with cataract surgery). *Ophthalmology*. 2014;121:454-458.
30. Price MO, Price Jr. FW, Kruse FE, et al. Randomized comparison of topical prednisolone acetate 1% versus fluorometholone 0.1% in the first year after descemet membrane endothelial keratoplasty. *Cornea*. 2014;33:880-886.
31. Price MO, Feng MT, Scanameo A, et al. Loteprednol Etabonate 0.5% Gel Vs. Prednisolone Acetate 1% Solution After Descemet Membrane Endothelial Keratoplasty: Prospective Randomized Trial. *Cornea*. 2015;34:853-858.
32. Allen MB, Lieu P, Mootha V V, et al. Risk factors for intraocular pressure elevation after descemet stripping automated endothelial keratoplasty. *Eye Contact Lens*. 2010;36:223-227.
33. Karadag O, Kugu S, Erdogan G, et al. Incidence of and risk factors for increased intraocular pressure after penetrating keratoplasty. *Cornea*. 2010;29:278-282.
34. Wandling Jr. GR, Parikh M, Robinson C, et al. Escalation of glaucoma therapy after deep lamellar endothelial keratoplasty. *Cornea*. 2010;29:991-995.
35. Yildirim N, Gursoy H, Sahin A, et al. Glaucoma after penetrating keratoplasty: incidence, risk factors, and management. *J Ophthalmol*. 2011;2011:951294.
36. Gaster RN, Dumitrascu O, Rabinowitz YS. Penetrating keratoplasty using femtosecond laser-enabled keratoplasty with zig-zag incisions versus a mechanical trephine in patients with keratoconus. *Br J Ophthalmol*. 2012;96:1195-1199.
37. Li C, Zhao GQ, Che CY, et al. Effect of corneal graft diameter on therapeutic penetrating keratoplasty for fungal keratitis. *Int J*

- Ophthalmol*. 2012;5:698-703.
38. Musa FU, Patil S, Rafiq O, et al. Long-term risk of intraocular pressure elevation and glaucoma escalation after deep anterior lamellar keratoplasty. *Clin Exp Ophthalmol*. 2012;40:780-785.
39. Ozeki N, Yuki K, Shiba D, et al. Intraocular pressure elevation after Descemet's stripping endothelial keratoplasty. *Jpn J Ophthalmol*. 2012;56:307-311.
40. Huang OS, Mehta JS, Htoo HM, et al. Incidence and Risk Factors of Elevated Intraocular Pressure Following Deep Anterior Lamellar Keratoplasty. *Am J Ophthalmol*. 2016;170:153-160.
41. Huang OS, Htoo HM, Chan AM, et al. Incidence and Outcomes of Intraoperative Descemet Membrane Perforations During Deep Anterior Lamellar Keratoplasty. *Am J Ophthalmol*. 2019;199:9-18.
42. Chan EW, Wong TT, Htoo HM, et al. De novo ocular hypertension after Descemet stripping endothelial keratoplasty: comparative 3-year incidence, risk factors, and outcomes. *Clin Ophthalmol*. 2013;7:1829-1841.
43. Ang M, Ho H, Wong C, et al. Endothelial keratoplasty after failed penetrating keratoplasty: an alternative to repeat penetrating keratoplasty. *Am J Ophthalmol*. 2014;158:1221-1227.e1.
44. Ang M, Mehta JS, Anshu A, et al. Endothelial cell counts after Descemet's stripping automated endothelial keratoplasty versus penetrating keratoplasty in Asian eyes. *Clin Ophthalmol*. 2012;6:537-544.
45. Ang M, Mehta JS, Sng CCA, et al. Indications, outcomes, and risk factors for failure in tectonic keratoplasty. *Ophthalmology*. 2012;119:1311-1319.
46. Ang M, Li L, Chua D, et al. Descemet's stripping automated endothelial keratoplasty with anterior chamber intraocular lenses: Complications and 3-year outcomes. *Br J Ophthalmol*. 2014;98:1028-1032.
47. Soh Y, Htoo HM, Mehta JS, et al. Five-Year Graft Survival Comparing Descemet Stripping Automated Endothelial Keratoplasty and Penetrating Keratoplasty. *Ophthalmology*. 2016;123:1646-1652.
48. Huber KK, Maier AK, Klamann MK, et al. Glaucoma in penetrating keratoplasty: risk factors, management and outcome. *Graefes Arch Clin Exp Ophthalmol*. 2013;251:105-116.
49. Moisseiev E, Varssano D, Rosenfeld E, et al. Intraocular pressure after penetrating keratoplasty and Descemet's stripping automated endothelial keratoplasty. *Can J Ophthalmol*. 2013;48:179-185.
50. Nguyen P, Khashabi S, Chopra V, et al. Descemet stripping with automated endothelial keratoplasty: A comparative study of outcome in patients with preexisting glaucoma. *Saudi J Ophthalmol*. 2013;27:73-78.
51. Zhang YM, Wu SQ, Yao YF. Long-term comparison of full-bed deep anterior lamellar keratoplasty and penetrating keratoplasty in treating keratoconus. *J Zhejiang Univ Sci B*. 2013;14:438-450.
52. Maier AK, Klamann MK, Torun N, et al. Intraocular pressure elevation and post-DSEK glaucoma after Descemet's stripping endothelial keratoplasty. *Graefes Arch Clin Exp Ophthalmol*. 2013;251:1191-1198.
53. Maier AK, Wolf T, Gundlach E, et al. Intraocular pressure elevation and post-DMEK glaucoma following Descemet membrane endothelial keratoplasty. *Graefes Arch Clin Exp Ophthalmol*. 2014;252:1947-1954.
54. Maier AK, Gundlach E, Gonnermann J, et al. Anterior segment analysis and intraocular pressure elevation after penetrating keratoplasty and posterior lamellar endothelial keratoplasty. *Ophthalmic Res*. 2015;53:36-47.
55. Acar BT, Muftuoglu O, Acar S. Comparison of sulfur hexafluoride and air for donor attachment in Descemet stripping endothelial keratoplasty in patients with pseudophakic bullous keratopathy. *Cornea*. 2014;33:219-222.
56. Blumenthal EZ, Frucht-Pery J, Solomon A. Risk factors and incidence of ocular hypertension after penetrating keratoplasty. *J Glaucoma*. 2014;23:599-605.
57. Sharma A, Sharma S, Pandav SS, et al. Post penetrating keratoplasty glaucoma: cumulative effect of quantifiable risk factors. *Indian J Ophthalmol*. 2014;62:590-595.
58. Chen Y, Liao C, Gao M, et al. Efficacy and Safety of Corneal Transplantation Using Corneas from Foreign Donors versus Domestic Donors: A Prospective, Randomized, Controlled Trial. *J Ophthalmol*. 2015;2015:178289.
59. Muller L, Kaufmann C, Bachmann LM, et al. Changes in intraocular pressure after descemet stripping automated endothelial keratoplasty: a retrospective analysis. *Cornea*. 2015;34:271-274.
60. Tannan A, Vo RC, Chen JL, et al. Comparison of ACIOL Retention With IOL Exchange in Patients Undergoing Descemet Stripping Automated Endothelial Keratoplasty. *Cornea*. 2015;34:1030-1034.
61. Borderie VM, Loriaut P, Bouheraoua N, et al. Incidence of Intraocular Pressure Elevation and Glaucoma after Lamellar versus Full-Thickness Penetrating Keratoplasty. *Ophthalmology*. 2016;123:1428-1434.
62. Nakatani S, Murakami A. Descemet stripping automated endothelial keratoplasty using corneas from elderly donors. *Graefes Arch Clin Exp Ophthalmol*. 2016;254:1135-1140.
63. Sandhu S, Petsoglou C, Grigg J, et al. Elevated intraocular pressure in patients undergoing penetrating keratoplasty and descemet stripping endothelial keratoplasty. *J Glaucoma*. 2016;25:390-396.
64. Sharma RA, Bursztyn LL, Golesic E, et al. Comparison of intraocular pressure post penetrating keratoplasty vs Descemet's stripping endothelial keratoplasty. *Can J Ophthalmol*. 2016;51:19-24.
65. Schaub F, Enders P, Zachewicz J, et al. Impact of Donor Age on Descemet Membrane Endothelial Keratoplasty Outcome: Evaluation of Donors Aged 17-55 Years. *Am J Ophthalmol*. 2016;170:119-127.
66. Schaub F, Enders P, Snijders K, et al. One-year outcome after Descemet membrane endothelial keratoplasty (DMEK) comparing sulfur hexafluoride (SF6) 20% versus 100% air for anterior chamber tamponade. *Br J Ophthalmol*. 2017;101:902-908.
67. Kaleem M, Ridha F, Shwani Z, et al. Rates of Intraocular Pressure Elevation and Use of Topical Antihypertensive Medication After Descemet Stripping Automated Endothelial Keratoplasty. *Cornea*. 2017;36:669-674.
68. Khattak A, Nakhli FR, Al-Arfaj KM, et al. Comparison of outcomes and complications of deep anterior lamellar keratoplasty and penetrating keratoplasty performed in a large group of patients with keratoconus. *Int Ophthalmol*. 2017;38(3):985-992.
69. Kocluk Y, Sukgen EA, Burcu A. Comparison of outcomes in patients who underwent deep anterior lamellar keratoplasty and those converted to penetrating keratoplasty. *Turkish J Ophthalmol*. 2017;47:63-67.
70. Phillips PM, Phillips LJ, Muthappan V, et al. Experienced DSAEK Surgeon's Transition to DMEK: Outcomes Comparing the Last 100 DSAEK Surgeries With the First 100 DMEK Surgeries Exclusively Using Previously Published Techniques. *Cornea*. 2017;36:275-279.
71. Treder M, Alnawaiseh M, Eter N. Descemet membrane endothelial keratoplasty (DMEK) early stage graft failure in eyes with preexisting glaucoma. *Graefes Arch Clin Exp Ophthalmol*. 2017;255:1417-1421.
72. Yuksel B, Kandemir B, Uzunel UD, et al. Comparison of visual and topographic outcomes of deep-anterior lamellar keratoplasty and penetrating keratoplasty in keratoconus. *Int J Ophthalmol*. 2017;10:385-390.

73. Singar-Ozdemir E, Burcu A, Oral B, et al. Effect of Donor Cornea on the Surgical Outcomes of Penetrating Keratoplasty: Imported Cornea Versus Domestic Cornea. *Exp Clin Transpl*. 2018.
74. Zheng C, Yu F, Tseng VL, et al. Risk of Glaucoma Surgery after Corneal Transplant Surgery in Medicare Patients. *Am J Ophthalmol*. 2018;192:104-112.
75. Raj A, Dhasmana R, Bahadur H. Incidence and risk factors for postkeratoplasty glaucoma in tertiary care center, India. *Oman J Ophthalmol*. 2018;11:220-226.
76. Infantes Molina EJ, Celis Sanchez J, Tenias Burillo JM, et al. Deep anterior lamellar keratoplasty versus penetrating keratoplasty in corneas showing a high or low graft rejection risk. *Eur J Ophthalmol*. 2018;29(3):295-303.