

NIIOS Newsletter

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REFERRALS TO MELLES CORNEA CLINIC ROTTERDAM

For referrals to Melles Cornea Clinic Rotterdam, please use the referral form enclosed, or download it from www.niios.com.

Please fax the referral form to +31 10 297 4440 and one of our international secretaries will make further arrangements.

To contact us by e-mail, please contact us at info@corneaclinic.nl.

Research & Development

Update on DMEK

Since the first selective transplantation of isolated Descemet membrane donor tissue was performed at the NIIOS in August 2006, more than 500 patients underwent a DMEK surgery in the Melles Cornea Clinic.

By closely monitoring the clinical outcome after each transplantation, we constantly analyze the results of the DMEK technique. Recently, we reported on the evaluation of the first 200 DMEK transplantations, the causes of glaucoma after DMEK and the outcome of DMEK surgery in phakic eyes.^{1,2,3}

In his study on the first 200 DMEK surgeries,¹ our Austrian corneal fellow Martin Dirisamer showed that 6 months after a DMEK surgery, 77% of the patients reached a best-corrected visual acuity of 0.8, and even 47% of the patients had their best-corrected visual acuity restored to 1.0. The endothelial cell density decreased by about one third within the first six months after surgery, which compares well with the decrease in endothelial cell density observed for other lamellar keratoplasty techniques like DSEK or DSAEK. Graft detachment is unfortunately still the most common complication after DMEK surgery and occurred after 9% of the transplantations, while a secondary glaucoma developed in about 4% of the eyes.

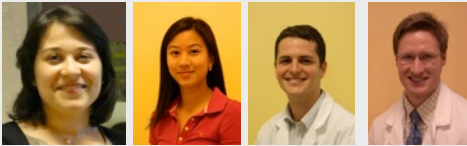
The causes of glaucoma after DMEK surgery and how to prevent it,² were studied in detail by our Spanish corneal fellow Miguel Naveiras. Even though the incidence of secondary glaucoma (~4%) or exacerbation of pre-existing glaucoma (~2.5%) is relatively low, glaucoma is one of the most critical potential complications of any form of corneal transplantation, since intraocular pressure elevation threatens both the survival of the graft and the health of the optic nerve. By applying the measures suggested by Miguel Naveiras and his co-workers, the incidence of post-surgery pressure elevation might now even be further reduced.

DMEK surgeries as well as other forms of endothelial keratoplasty are often performed after a cataract extraction, because removal of the natural crystalline lens deepens the anterior chamber and facilitates corneal transplantation. Our research fellow Jack Parker, however, showed that there are also benefits of leaving the crystalline lens in situ.³ While phakic eyes had a similar visual rehabilitation as pseudophakic patients, only phakic eyes could reach best-corrected visual acuities of 1.5 or higher after DMEK surgery. When also taking into account that leaving the (clear) crystalline lens in situ preserves the accommodative function of the eye and that a DMEK surgery can be relatively easily performed in phakic eyes, leaving the (clear) crystalline lens in situ before DMEK is an option worth considering.

References

1. Dirisamer M, L Ham, Dapena I, Moutsouris K, Droutsas K, K van Dijk, Frank L, Oellerich S, Melles GRJ. De werkzaamheid van Descemet membraan endotheliale keratoplasty (DMEK): Klinische resultaten van 200 opeenvolgende gevallen na een 'leercurve' van 25 gevallen. Arch Ophthalmol 2011; 129:1435-43.
2. Naveiras M, Dirisamer M, Parker J, Ham L, van Dijk K, Dapena I, Melles GRJ. Oorzaken van glaucom na Descemet membraan endotheliale keratoplasty (DMEK). Am J Ophthalmol 2012; 153:958-66.
3. Parker J, Dirisamer M, Naveiras M, Tse WHW, van Dijk K, Frank LE, Ham L, Melles GRJ. Resultaat van Descemet membraan endotheliale keratoplasty in phake ogen. J Cataract Refr Surg 2012; 38:871-7.

Cornea & Research fellows 2012



V.l.n.r. Lamis Baydoun, Duitsland; Maya Tong, Canada; Javier Cabrerizo, Spanje; en Jack Parker, VS

NIIOS scientific articles 2011/2012

- ♦ Parker J, Parker JS, Melles GRJ. Descemet membrane endothelial keratoplasty (DMEK): A review. US Ophthalmic Review. Accepted.
- ♦ Tong CM, Melles GRJ. Where would endothelial keratoplasty be going: from DSAEK to DMEK to DMET? Can J Ophthalmol. Accepted.
- ♦ Groeneveld-van Beek EA, Lie JT, van der Wees J, Bruinsma B, Melles GRJ. Standardized 'no-touch' donor tissue preparation for DALK and DMEK: Harvesting undamaged anterior and posterior transplants from the same donor cornea. Acta Ophthalmol. Accepted.
- ♦ Parker J, Melles GRJ. Graft detachment after Descemet membrane endothelial keratoplasty. Cataract Refract Surg Today 2012;April:38-9.
- ♦ Bruinsma M, Lie JT, Groeneveld-van Beek EA, Liarakos VS, van der Wees J, Melles GRJ. Are polymegethism, pleomorphism, and 'poor swelling' valid discard parameters in immediate post-mortem evaluation of human donor corneal endothelium. Cornea. Accepted.
- ♦ Dapena I, Yeh R-Y, Quilendrin R, Melles GRJ. A surgical step to facilitate phacoemulsification after Descemet membrane endothelial keratoplasty (DMEK). J Cataract Refr Surg. Accepted.
- ♦ Dirisamer M, Yeh R-Y, van Dijk K, Ham L, Dapena I, Melles GRJ. Recipient endothelium may relate to corneal clearance in Descemet membrane endothelial transfer (DMET). Am J Ophthalmol. Accepted.
- ♦ Dieleman M, Wefers Bettink-Remeijer M, Jansen J, Hoppenreijns VPT, van der Pol R, Baarsma S, van Dijk K, de Waard- van der Spek FB, van Wijk RG, Zijlmans BLM. High incidence of adverse reactions to locoregional anaesthesia containing hyaluronidase after uneventful ophthalmic surgery. Acta Ophthalmol. In press.
- ♦ Parker J, Dirisamer M, Naveiras M, Tse WHW, van Dijk K, Frank LE, Ham L, Melles GRJ. Outcome of Descemet membrane endothelial keratoplasty in phakic eyes. J Cataract Refract Surg. In press.
- ♦ Naveiras M, Dirisamer M, Parker J, Ham L, van Dijk K, Dapena I, Melles GRJ. Causes of glaucoma after Descemet membrane endothelial keratoplasty (DMEK). Am J Ophthalmol. In press.
- ♦ Dirisamer M, van Dijk K, Dapena I, Ham L, Oganesyan O, Frank LE, Melles GRJ. Prevention and management of graft detachment in Descemet membrane endothelial keratoplasty. Arch Ophthalmol. In press.
- ♦ van Luijk CM, Bruinsma M, van der Wees J, Lie JT, Ham L, Melles GRJ. Combined chlorhexidine and PVP-I decontamination of human donor eyes prior to corneal preservation. Cell and Tissue Banking. In press.
- ♦ Dirisamer M, Ham L, Dapena I, van Dijk K, Melles GRJ. Descemet membrane endothelial transfer (DMET): 'Free floating' donor Descemet implantation as a potential alternative to 'keratoplasty'. Cornea 2012;31:194-7.
- ♦ Dirisamer M, Ham L, Dapena I, Moutsouris K, Droustas K, van Dijk K, Frank L, Oellerich S, Melles GRJ. Efficacy of Descemet membrane endothelial keratoplasty (DMEK): Clinical outcome of 200 consecutive cases after a 'learning curve' of 25 cases. Arch Ophthalmol 2011;129:1435-43.
- ♦ Dapena I, Ham L, Droustas K, van Dijk K, Moutsouris K, Melles GRJ. Learning curve in Descemet's membrane endothelial keratoplasty: First series of 135 consecutive cases. Ophthalmology. 2011;118:2147-54.
- ♦ Dirisamer M, Dapena I, Ham L, van Dijk K, Oganesyan O, Frank LE, van der Wees, Melles GRJ. Patterns of corneal endothelialization and corneal clearance after Descemet membrane endothelial keratoplasty for Fuchs endothelial dystrophy. Am J Ophthalmol 2011;152:543-55.
- ♦ Parker JS, Dirisamer M, Naveiras M, Ham L, van der Wees J, Melles GRJ. Endothelial cell density after Descemet membrane endothelial keratoplasty: 1-4 year follow-up. Am J Ophthalmol. 2011;151:1107-1107.e2.
- ♦ Ham L, Dapena I, Moutsouris K, Balachandran C, Frank LE, van Dijk K, Melles GRJ. Refractive change and stability after Descemet membrane endothelial keratoplasty (DMEK): Corneal dehydration induces hyperopic shift not affecting lens power calculation. J Cataract Refract Surg. 2011;37:1455-64.
- ♦ Dapena I, Ham L, Netuková M, van der Wees J, Melles GRJ. Incidence of early allograft rejection following Descemet membrane endothelial keratoplasty (DMEK). Cornea 2011;30:1341-5.
- ♦ Moutsouris K, Dapena I, Ham L, Balachandran C, Oellerich S, Melles GRJ. Optical coherence tomography, Scheimpflug imaging and slit-lamp biomicroscopy in the early detection of graft detachment after Descemet membrane endothelial keratoplasty (DMEK). Cornea 2011;30:1369-75.

Financing Research & Development; a challenge

Melles Research Funds launched

→ **MRF**
TEKST
TE
LANG:
INKORTEN



MELLES
RESEARCH
FONDS



ARTIKEL ETP

Isabel Dapena and Lisanne Ham promoted! UITBREIDEN, eventueel meer/grotere foto's

CUM LAUDE

A few weeks ago Isabel Dapena and Lisanne Ham defended their thesis in Alicante, Spain in front of a European committee. After a few years of intensive research, both ladies are relieved and very proud to be promoted. It made it even more special that they were honoured cum laude. We congratulate them both with their achievement!

Thesis

The PhD Thesis of Dr. Isabel Dapena, titled: "DESCEMET MEMBRANE ENDOTHELIAL KERATOPLASTY (DMEK): surgical technique, results and complications" and the PhD Thesis of Dr. Lisanne Ham, titled "DESCEMET MEMBRANE ENDOTHELIAL KERATOPLASTY (DMEK): Donor tissue preparation and clinical outcomes", have been written according to the rules of the Miguel Hernández University for the "Presentation of a PhD Thesis as a group of articles" and as a "European doctorate".

University

Miguel Hernández University Faculty of Medicine (Ophthalmology).

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- ♦ Dirisamer M, Acis G, Dapena I, Ham L, Versteeg FFH, Melles GRJ. Secondary 'Thin DSEK' after long term graft failure in DLEK: A double transplanted cornea. *Cornea* 2011;30:828-31.
- ♦ Dapena I, Dapena L, Dirisamer M, Ham L, Melles GRJ. Agudeza visual y densidad de células endoteliales tras queratoplastia endotelial de membrana de Descemet (DMEK). Visual acuity and endothelial cell density following Descemet Membrane Endothelial Keratoplasty (DMEK). *Arch Soc Esp Oftalmol* 2011;86:395-401.
- ♦ Droustas K, Dapena I, Melles GRJ, Sekundo W. One corneal graft for two recipients: Preliminary results of Descemet Membrane Endothelial Keratoplasty (DMEK) at the Marburg University Eye Clinic. *Greek Ann Ophthalmol* 2011;21:17-21.
- ♦ van Dijk K, Dapena I, Moutsouris K, Ham L, Nieuwendaal CP, Melles GRJ: First DLEK series: 10-year follow-up. *Ophthalmology* 2011;118:424-424e3.
- ♦ Dapena I, Moutsouris K, Droustas K, Ham L, van Dijk K, Melles GRJ. Standardized 'no touch' technique for Descemet's membrane endothelial keratoplasty (DMEK). *Arch Ophthalmol* 2011;129:88-94.
- ♦ Ham L, Dapena I, Moutsouris K, Melles GRJ. Persistent corneal edema after descemetorhexis without corneal graft implantation in a case of Fuchs endothelial dystrophy. *Cornea* 2011;30:248-9.

Two-day advanced keratoplasty wetlab courses in Rotterdam

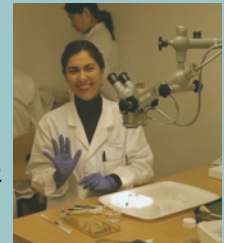
Deep Anterior Lamellar Keratoplasty (DALK)
Descemet Membrane Endothelial Keratoplasty (DMEK)

DALK/DMEK:

September 4/5, 2012

DALK/DMEK:

November 13/14, 2012



Each course is scheduled on a Tuesday/Wednesday. On Tuesdays, the course participants join live surgery sessions; on Wednesday, various techniques are practised during educational wetlab sessions and patient demonstrations.

See www.nios.com for application form and update.



Directors:

- Gerrit R.J. Melles, MD, PhD, Director of the Netherlands Institute for Innovative Ocular Surgery, Rotterdam, The Netherlands
- Prof. D. Jorge L. Alió y Sanz, MD, PhD, Chairman of the Depart. of Ophthalmology, Miguel Hernandez University, Alicante, Spain.

Comittee

- Professor Gernot Duncker, MD, PhD
- Professor Miguel Angel Teus Guezala, MD, PhD
- Professor Jaime Javaloy Estañ, MD, PhD
- Professor Rafael Ignacio Barraquer, MD, PhD
- Professor Angel Ramón Gutiérrez Otega, MD, PhD





Een patiënt aan het woord...

Travel is my drug of choice!

Mr. Greenberg, a 60 year old attorney and business man with interest in alternative energy came from New York to the Melles Cornea Clinic in November 2011 for a DMEK transplantation.

Can you tell us something about yourself?

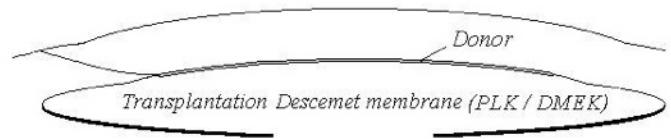
Think of myself as a citizen of the world. My father and I love to travel and particularly enjoy Europe and the Middle East. Travel is my drug of choice! I hope to stay active like my father who at 89 enjoys 20/15 vision! Race car driving, downhill skiing, swimming and fishing are among my vision intensive interests providing regular breaks from my work.

How was life before the surgery?

Life before the DMEK operation had gotten rather precarious. My Fuchs Corneal Dystrophy was diagnosed about twelve years ago but was barely noticeable in the early stages. I found it was increasingly sensitive to hot and humid weather. During recent summers, I would sometimes have to wear sunglasses when the glare from the sun became a big problem. In addition, I had to use a cane to help me see. I was tripping over curbs and missing stairs. Driving at night had become a real challenge.

How did you choose for treatment in the Melles Cornea Clinic in Rotterdam?

Six years ago my ophthalmologist advised me to have a transplant. At that time New York doctors were just beginning to perform lamellar transplants. I was advised that my partial transplant might very well end up becoming a full thickness transplant. I chose to wait and will be forever grateful that I did. I joined the informative Fuchs'_Friends web group and followed up with my own web-based research. After that I became aware of NIIOS and the groundbreaking work of Dr. Melles. What appealed to me immediately was his priority to preserve, as much as possible, the integrity of the eye itself by replacing only the diseased tissue while leaving the healthy tissue intact.



Did you have any hesitations to come to an overseas clinic?

While traveling to Rotterdam might seem a big step it was an easy choice once I weighted the medical and personal considerations. Medically I appreciated that Dr. Melles is the pioneer of the lamellar transplant that is now the gold standard of treatment throughout the world. In the US, surgeons believe very early cataracts should be removed in any patient over 50. Dr. Melles told me I would probably have better vision if I kept my natural lenses. Again, his respect for not tampering, unnecessarily, with the anatomy I was born with was much appreciated. The likelihood of DMEK providing faster recovery, better vision and less probability of rejection made this the procedure of choice for me. Who better to perform it than it's pioneer? On a personal note Dr. Melles, along with the entire NIIOS team, inspired my confidence and trust in a way I did not experience elsewhere.

How did you experience the treatment and the surgery?

Easier than I anticipated. Due to an unfortunate interim heart attack, I am taking Aspirin and Plavix now. These blood thinners gave me concern about the risk of bleeding during surgery. Dr. Melles reassured me and practically held my hand through the entire procedure. He greeted me at the door that morning and talked to me with warmth and kindness throughout the surgery. The time passed quickly and without any pain. The recovery at the Hotel New York went well also. Dr. Melles called me that evening and everything continued to progress smoothly when he removed the eye protection the next morning. After only a few days my vision was sharper and brighter than it had been in many years.

What effect did the surgery have?

My vision continued to improve during the six weeks following the surgery and appears now settled at 20/25. My eyesight is better than it has been in many years. It was only after surgery that I fully realized the loss to my vision that had settled in over many years. Colors were brighter and details astounding. Seeing the threads in a towel, individual hairs on peoples heads, wood grain, etc. I still use reading glasses but can read a newspaper or menu without them and without bright lights. There is no more need to have the sun at my back when talking to people. Before surgery I lost all details of their faces in the shadows. Driving is fun again - even at night. I look forward to my second DMEK. However, it is not urgent because my "new" eye has raised the level of my total vision. My brain has adjusted about 99% to the differences in my eyes. Life is good!