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Descemet's membrane endothelial keratoplasty (DMEK): can we do even better?

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Recent developments in ultrathin lamellar grafts for the treatment of corneal endothelial diseases today offer unprecedented visual results. Several lines of clinical research are currently aimed at further improving both the technique and results of this procedure: (i) development of intraoperative imaging, (ii) improvement of the final refractive result by predicting the DMEK-induced refractive changes, and (iii) evaluation of the femtosecond laser for surgical procedure assistance. The intraoperative OCT helps control intraocular endothelial dissection, positioning of the graft, and visualization of its relationship to the recipient's ocular structures for a better postop result. In parallel, we have demonstrated that it is now possible to better predict the refractive changes induced by DMEK, and thus to optimize the calculation of implants in combined surgery, targeting emmetropia for each patient. Last, the development of the femtosecond laser with real-time OCT allows to control the depth of cut in the framework of ultrathin DSEAK, and perhaps one day performing the intraocular ablation of the Descemet's membrane in an automated way. Based on clinical cases, operative videos, and a recent prospective clinical study from our team, this presentation aims to illustrate the current prospects for further improving endothelial grafts in terms of surgical procedure and visual outcomes.

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