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## Corneal transplantation surgery: Where we are and where are we going?

Corneal surgery has experienced a revolutionary progress over the last 25 years. From penetrating keratoplasty being the only procedure available, with a limited capacity to avoid negative factors that negatively influence the incidence of frequent complications that affect the anatomical outcome. These include immune rejection, comorbidities, quality of the tissue with primary failure and also the unpredictable results of this technique concerning refraction, binocularity, and anisometropia, corneal graft surgery. There has been huge progress toward the accomplishment of lamellar surgery, in which different layers of the cornea, either Descemet endothelium to the stroma or the superficial cornea can be grafted more successfully and with more control both in the anatomical and in the functional result of corneal transplantation.

No doubt, this progress has been the consequence of a continuous source of innovations in surgery, technology and doctors' awareness, and criticism of the outcomes. Corneal grafting is a procedure that still must be implemented. Failures can be anatomical, with a failure in graft transparency or function with a failure in the corneal optics or binocular balance, leading to useless vision for the transplanted eye. Recently, failure rates of penetrating keratoplasty have diverse outcomes depending on the geography, up to 45% in penetrating keratoplasty, 33% in deep anterior lamellar keratoplasty, 44% in Descemet's stripping endothelial

keratoplasty, and 10% Descemet's membrane endothelial keratoplasty.<sup>[1]</sup> Within 10 years in Australia, the failure rates are estimated at 38%, 36% in France, 29% in Sweden, 48% in Singapore, up to 53.5% after 5 years in India, and 58.3% after 10 years in Thailand.<sup>[2-7]</sup> Functional outcomes with low best-corrected visual acuity and high ametropia are inducing important limitations in binocularity. With all these facts, even with the huge step forward that has recently happened in corneal graft surgery, there is still a tremendous amount of work to do to implement the predictability of the anatomical and functional outcomes of corneal graft procedures.<sup>[8]</sup>

This special issue of the *Taiwan Journal of Ophthalmology* (TJO) puts the focus on modern trends in corneal surgery and especially in corneal transplantation procedures. It addresses this problem specifically, from immunological control, issues in patient selection, new types of corneal stroma transplantation using refractive lamellar intrastromal surgery lenses, among others, aiming to offer the reader evidence that can influence positively the indications, control and better outcomes in the different types of corneal graft surgery performed today, indicating also the trends toward the future of corneal surgery. In a recent book edited by our institution recently, we have shown the new philosophy and trends in corneal transplantation and regeneration. Such publication has inspired the development of this special issue of the TJO when proudly acting as its Editor.

Welcome to this special issue of the TJO on Modern Corneal Surgery!

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## Data availability statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

**Jorge L. Alio<sup>1,2,3,4\*</sup>**

<sup>1</sup>Professor and Chairman of Ophthalmology, Miguel Hernandez University, <sup>2</sup>Founder Vissum Miranza Alicante, Spain, <sup>3</sup>Academia Ophthalmologica Internacionalis, <sup>4</sup>European Academy of Ophthalmology, Chair XLIX

### \*Address for correspondence:

Prof. Jorge L. Alio,  
Vissum Miranza Alicante, C/ Cabañal, 1, 03016 Alicante, Spain.  
E-mail: jlalio@vissum.com

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