

ABSTRACT

The Association of Preoperative Factors with Emmetropization in Myopia Following Transepithelial Photorefractive Keratectomy (TransPRK) at Dr. Yap Eye Hospital Yogyakarta

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Introduction and Objective: TransPRK is a method of epithelial removal technique using laser and aimed to have a better visual outcome compared to the conventional PRK. There was not yet a single study which analyzes the incidence of ametropia and its risk factors for this new epithelial removal technique. This study aimed to investigate factors which influence the emmetropization after transPRK.

Design: Observational comparative study using retrospective cohort design.

Method: Medical records of patients underwent *transepithelial* PRK from 2015-2018 were studied and clinical observation of transPRK procedures was done. Subjects were divided into 2 groups according to visual outcome after the procedure, which consisted of ametropia and emmetropia groups. Several preoperative parameters were studied to look for any association with incidence of ametropia after transPRK.

Results: A total of 140 eyes were included in the analysis of which 111 eyes were male sex (79.29%). Incidence of ametropia after transPRK was 14.29% (20 eyes) and 85.71% reached emmetropia (120 eyes). Subjects in ametropia group was older (31.80 ± 14.23 years) compared to emmetropia group (18.88 ± 2.41 years) ($P < 0.001$). Bivariate logistic regression analysis showed that high preoperative myopia (> -6 D), preoperative $K_{\max} > 45$ D, preoperative *mean K* > 44 D and older age significantly increased the risk of ametropia following transPRK ($P = 0.01$; $P = 0.013$; $P = 0.008$; $P < 0.001$, respectively).

Conclusions: High preoperative myopia, high keratometric value and older age increased the risk of ametropia following transPRK procedure.

Keywords: *transepithelial* PRK, emmetropization, ametropia, myopia, K_{\max} , age, *mean K*

INTISARI

Hubungan Faktor –Faktor Preoperatif dengan Emotropisasi Pasien Miopia Pasca
Transepithelial Photorefractive Keratectomy (TransPRK)
di RS Mata Dr. Yap Yogyakarta

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Pendahuluan dan Tujuan: Metode transPRK adalah teknik pengelupasan epitelium kornea dengan laser yang diharapkan memiliki angka keberhasilan pencapaian emetropisasi yang lebih baik dari metode PRK konvensional. Belum ada penelitian yang meneliti kejadian ametropia dan faktor yang mempengaruhinya. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang berpengaruh terhadap pencapaian emetropisasi pasca transPRK.

Desain: Penelitian komparatif observasional dengan menggunakan desain kohort retrospektif.

Metode: Rekam medis dari pasien yang menjalani prosedur *transepithelial* PRK sejak tahun 2015-2018 diteliti dan dilakukan observasi klinis prosedur transPRK. Subyek dibagi ke dalam 2 kelompok berdasarkan pencapaian emetropisasi pasca operasi, yaitu kelompok ametropia dan emetropia. Beberapa parameter preoperatif diteliti untuk mencari hubungan dengan kejadian ametropia pasca transPRK.

Hasil: Total 140 mata memenuhi kriteria inklusi dengan subyek laki-laki sebanyak 111 mata (79.29%). Insidensi ametropia pasca transPRK ialah sebesar 14.29% (20 mata) dan keberhasilan emetropisasi ialah sebesar 85.71% (120 mata). Grup ametropia memiliki rerata usia yang lebih tua (31.80 ± 14.23 tahun) dibandingkan dengan grup emetropia (18.88 ± 2.41 tahun) ($P < 0.001$). Analisis regresi logistik bivariat menunjukkan bahwa miopia preoperatif tinggi (> -6 D), nilai keratometri preoperatif $K_{max} > 45$ D, *mean* K > 44 D dan usia tua secara signifikan meningkatkan risiko terjadinya ametropia pasca transPRK ($P = 0.01$; $P = 0.013$; $P = 0.008$; $P < 0.001$, secara berurutan).

Kesimpulan: Derajat miopia preoperatif tinggi, nilai keratometri preoperatif tinggi dan bertambahnya usia meningkatkan risiko terjadinya ametropia pasca transPRK.

Kata kunci: *transepithelial* PRK, emetropisasi, ametropia, miopia, K_{max} , usia, *mean*