

INTISARI

PERUBAHAN KADAR ENZIM MALAT DEHIDROGENASE AIR MATA PADA EDEMA KORNEA PASCA OPERASI KATARAK SETELAH TERAPI OKSIGENASI TRANS-KORNEA

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Latar belakang : Edema kornea merupakan salah satu komplikasi pasca operasi katarak oleh karena manipulasi atau paparan yang terlalu lama atau berlebihan pada kornea sehingga terjadi kerusakan sel-sel endotel kornea dan akhirnya menimbulkan hipoksia pada kornea. Salah satu penanda biologis yang kerap muncul pada kondisi hipoksia kornea adalah kenaikan enzim malat dehidrogenase (MDH) yang diperoleh dari air mata. Penelitian sebelumnya membuktikan bahwa pemberian oksigenasi trans-kornea berdampak pada perbaikan edema kornea dan menjadi salah satu terobosan terapi baru selain terapi konvensional.

Metode : Desain penelitian ini menggunakan rancangan penelitian *pre-post design* yang dilakukan pada 12 pasien, meliputi semua pasien yang terdiagnosis edema kornea pasca operasi katarak dan memperoleh terapi oksigenasi trans-kornea. Pengambilan sampel air mata pertama dilakukan sebelum terapi oksigenasi trans-kornea, menggunakan kertas Schirmer secara steril, dari forniks inferior konjungtiva.. Pencatatan data dan pengambilan sampel air mata dilakukan pada hari kedua dan hari kelima pasca operasi sebelum dan sesudah terapi oksigenasi trans-kornea; data meliputi visus, densitas endotel kornea, ketebalan kornea sentral, dan koefisien variasi endotel kornea.

Hasil : Terdapat kecenderungan penurunan konsentrasi MDH air mata pada hari ke-2 dan ke-5 pasca terapi oksigenasi trans-kornea walaupun tidak bermakna secara statistik ($p = 0,505$ dan $p = 0,666$) . Tidak terdapat perubahan konsentrasi MDH yang bermakna pada hari ke-2 dibandingkan dengan hari ke-5 ($p = 0,875$). Terdapat perbaikan klinis berupa penurunan ketebalan kornea sentral ($p = 0,005$), perbaikan visus ($p = 0,001$), dan penurunan koefisien variasi endotel kornea yang bermakna ($p = 0,028$) pasca pemberian oksigenasi trans-kornea.

Kesimpulan : Tidak terdapat penurunan kadar MDH air mata yang bermakna pada edema kornea pasca operasi katarak yang telah dilakukan terapi oksigenasi trans-kornea. Terdapat perbaikan klinis berupa penurunan ketebalan kornea sentral, perbaikan visus, dan penurunan koefisien variasi endotel kornea pada edema kornea pasca operasi katarak yang telah diberikan terapi oksigenasi trans-kornea.

Kata kunci : *edema kornea pasca operasi katarak, malat dehidrogenase, oksigenasi trans-kornea, ketebalan kornea sentral*

ABSTRACT

CHANGES OF TEARS MALATE DEHYDROGENASE IN CORNEAL EDEMA FOLLOWING CATARACT SURGERY AFTER TRANS-CORNEAL OXYGENATION TREATMENT

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Introduction and objective : Corneal edema is one of several complications after cataract surgery due to manipulation or excessive exposure to the cornea resulting in damage to the corneal endothelial cells and eventually hypoxia in the cornea. One of the biological markers that often appears in corneal hypoxia is an increase of the tears'enzyme malate dehydrogenase (MDH). Previous studies have shown that administration of trans-corneal oxygenation has an positive impact on the improvement of corneal edema and has become one of the breakthroughs in new therapies in addition to conventional therapies.

Material and methods : The design of this study was a pre-post design study design conducted on 12 patients, including all patients diagnosed with corneal edema after cataract surgery and receiving trans-corneal oxygenation therapy. First tear sample was taken before trans-corneal oxygenation therapy, using Schirmer paper sterilely from the inferior fornix of the conjunctiva. Data recording and tear sampling were carried out on the second and fifth day postoperatively before and after trans-corneal oxygenation therapy; data include visual acuity, corneal endothelial density, central corneal thickness, and coefficient of corneal endothelial variation.

Results : There was a slight decrease in MDH tear concentration on the second day and fifth day after trans-corneal oxygenation therapy, but not statistically significant ($p = 0,505$ and $p = 0,666$). Enzyme MDH concentration on the second day compared to the fifth day was also not statistically significantly different ($p = 0.875$). There was significant decrease in central corneal thickness ($p = 0.005$), corneal endothelial variation coefficient ($p = 0.028$), and improvement of visual acuity ($p = 0.001$) after administration of trans-corneal oxygenation.

Conclusions : There was no statistically significant decrease in tears MDH levels in post cataract corneal edema that has been carried out trans-corneal oxygenation therapy. There were clinical improvements include a significant reduction in central corneal thickness and endothelial coefficient of variation, and visual acuity improvement in post cataract surgery corneal edema after trans-corneal oxygenation treatment.

Keywords : *corneal edema after cataract surgery, malate dehydrogenase, trans-corneal oxygenation, central corneal thickness*