

## MULTIFOCAL ELECTRORETINOGRAM (mfERG) CHANGES BEFORE AND AFTER VITRECTOMY IN MACULA-OFF RETINAL DETACHMENT WITH COMPLETE REATTACHMENT

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### ABSTRACT

**Objectives:** To explore the changes of multifocal electroretinogram (mfERG) before and after retinal detachment surgery and to evaluate its clinical conditions.

**Methods:** A total of 26 eyes with rhegmatogenous retinal detachment were included in this prospective study. Multifocal electroretinogram (MonPackONE ERG) was performed with a 61 hexagons pattern in 5 concentric rings (ring 1, from  $<2^\circ$ ; ring 2, from  $2^\circ$  to  $5^\circ$ ; ring 3, from  $5^\circ$  to  $10^\circ$ ; ring 4, from  $10^\circ$  to  $15^\circ$ ; ring 5, over  $15^\circ$ ). The exam was performed preoperative and 3 months postoperative, with ophthalmologic evaluation and best corrected visual acuity (BCVA). The average amplitude and implicit time of N1-wave and P1-wave of mfERGs in all rings area were compared before and after surgery.

**Results:** Twenty-six patients including 16 male and 10 female subjects with mean age of  $48.9 \pm 18.9$  (range, 20 to 67) years were enrolled. Anatomic success was achieved in all patients. There was an increase in BCVA before vitrectomy compared with after vitrectomy  $2.9 \pm 0.2$ ;  $1.3 \pm 0.7$  ( $p < 0.000$ ). In mfERG concentric ring analysis, N1 amplitude and P1 amplitude were found increase significantly in post operative group, differences in implicit time weren't statistically significant between preoperative and postoperative examination.

**Conclusion:** Multifocal ERG is helpful to quantitatively and objectively assess the effect of retinal detachment surgery on retinal function. Patients with regmatogen retinal detachment after vitrectomy and retinal attachment showed increased N1 and P1 amplitude mfERG images in all areas. The response amplitude is a more sensitive index than implicit time to evaluate retinal function of retinal detachment.

**Keywords:** Rhegmatogen Retinal Detachment, Multifocal ERG, Vitrectomy, Retinal Reattachment