

NORMAL VALUES OF STANDARD FULL FIELD ELECTRORETINOGRAPHY AND VISUAL EVOKED POTENTIAL IN INDONESIAN ADULTS



SYNTIA NUSANTI, THERESIA YINSI GONDOSARI, ROMMEL ALEDDIN, MUHAMAD SIDIK
 NEUROPHTHALMOLOGY DIVISION, DEPARTMENT OF OPHTHALMOLOGY
 FACULTY OF MEDICINE, UNIVERSITAS INDONESIA

PURPOSE

Following ISCEV recommendation that each laboratory should have its own normal values of full field electroretinography (ff-ERG) and visual evoke potential (VEP), the purpose of this study is to establish normal values of Indonesian adult population with Metrovision Electroretinogram that will be applied for our new laboratory.

METHOD

Fifty eight normal eyes from Indonesian subjects with age between 19 and 49 years old were selected. ERG amplitudes and implicit time values also latency and amplitude of VEP were measured according to recommendations by the International Society for Clinical Electrophysiology of Vision (ISCEV). Evaluations consisted of scotopic 0.01 ERG, scotopic 3.0 ERG, scotopic 3.0, Occilatory potential ERG and photopic, 3.0 flicker. For VEP recording was done in 15 arc and 60 arc.



Figure 1. VEP Examination in RSCM KIRANA

RESULTS

Mean scotopic 0.01 b-wave amplitude was 285 μ V and b-wave implicit time was 77 ms. Mean scotopic 3.0 a-wave amplitude was -285 μ V, a-wave implicit time was 24 ms, b-wave amplitude was 297 μ V and b-wave implicit time was 46 ms. Mean scotopic 3.0 OP-wave sum amplitude was 343 μ V and OP1-wave implicit time was 21 ms. Mean photopic 3.0 flicker b-wave amplitude was 46 μ V and b-wave implicit time was 29 ms. For the VEP result latency in male subject was $108,0 \pm 5,9$ and $107,4 \pm 5,4$ for female. The amplitudo was 14 for male and 18,7 in female.

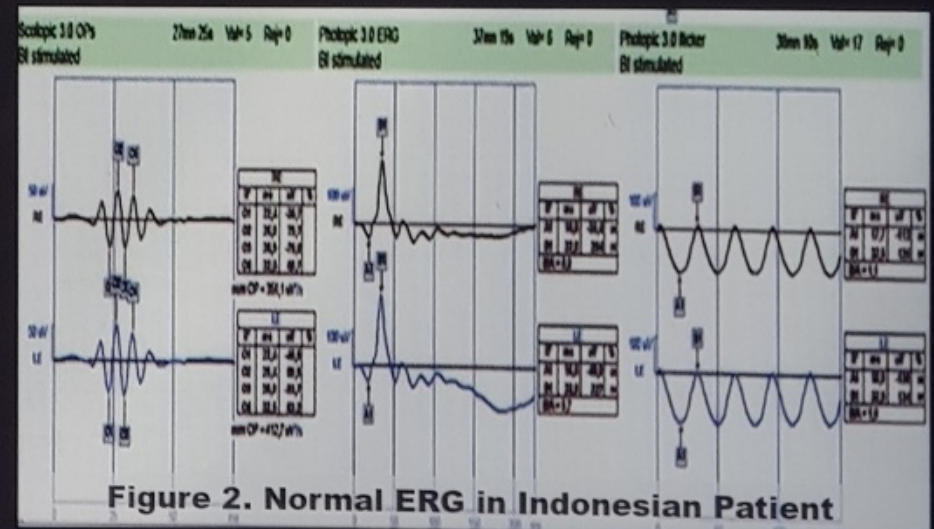


Figure 2. Normal ERG in Indonesian Patient

Table 2. Comparasion between VEP latency and amplitude of P100 based on gender

Visual Acuity 6/6	Latency		Amplitude	
	Male	Female	Male	Female
15 min arc	108.0 ± 5.9	107.4 ± 5.4	14 (0.5-2.8)	18.7 (5.4-36.5)
60 min arc	103.1 ± 5.7	102.1 ± 4.7	10.6 (1.6-19.9)	12 (4.1-26.4)

Table 1. Normal values of ff-ERG using Dencott Electrode

Evaluation	Result
Scotopic 0.01 b-wave implicit time	61 – 95 ms
Scotopic 0.01 b-wave amplitude	133 – 544 μ V
Scotopic 3.0 a-wave implicit time	22 – 27 ms
Scotopic 3.0 a-wave amplitude	-455 – -138 μ V
Scotopic 3.0 b-wave implicit time	40 – 52 ms
Scotopic 3.0 b-wave amplitude	315 – 737 μ V
OP wave implicit time	19.5 – 26 ms
OP wave sum amplitude	106 – 589 μ V
Photopic 3.0 flicker b-wave implicit time	27 – 35 ms
Photopic 3.0 flicker b-wave amplitude	44 – 236 μ V

CONCLUSION

Our results may serve as a reference for normal values of standard full field electroretinography using Dencott electrode and pattern VEP in Indonesian adults' population.