The Variability of the EOG in the Same Person

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In 1967 Kelsey published data concerning the variability of the electro-oculogram (EOG) in the same person. The values he found are surprisingly high. A confirmation of these data seemed to be indicated. The investigation has been carried out, according to Arden’s technique, in 60 normal subjects, varying in age from 22–49 years. Each of them provided us with 10 EOG, made on different days. The ratio between the highest value in the 12-min light-adaptation and the lowest value in the preceding 12-min dark-adaptation was measured (light peak/dark through ratio). Normally the rest potential increases during the light period to approximately twice the lowest value in the dark period. As the lower limit of the normal range Arden [1962] found a ratio of 1.85.

The mean value of all EOG, measured by us in the normal subjects, amounts to 2.15. The variability per individual was rather great and could reach values of 0.6. The standard deviation (SD) per individual varied between 0.113 and 0.252. The mean SD was 0.25.

From these data 2 conclusions can be drawn:

1. An alteration of the EOG in the course of a retinal disturbance smaller than 0.25 (once the SD) is of no importance. Only an alteration of over 0.5 (twice the SD) is significant.
2. A well-defined limit between the normal and subnormal EOG could not be given. It appeared to be much better to make allowances for borderline-cases. On account of these data a classification of the EOG will be proposed:

- EOG > 2.15 positively normal
- 1.90–2.15 normal (mean value minus once the SD)
- 1.65–1.90 borderline cases (mean value minus twice the SD)
- < 1.65 subnormal.

References