

On a Relationship between Photic Driving and Visually Evoked Response in Eye-opened Resting State

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There have been described considerably many investigations concerning evoked electroencephalographic (EEG) response, so-called photic driving, caused by rhythmic photic stimulation. However, the mechanism of photic driving is not clarified yet, as indicated in the recent report of ITOH¹⁾. The present experiments were performed to study this problem from the standpoint of the generating mechanism of photic driving in eye-opened resting state.

The EEGs and average evoked responses during various rhythmic photic stimulation were recorded from 42 normal subjects with eyes opened and the fundamental EEG responses were compared with the average visually evoked responses. The incidence of photic driving was 35.7 per cent of the subjects. From a standpoint of the fundamental frequency response profiles, the driving responses were classified into two groups. First, "summation type" which showed the inverted U-shaped curve with a peak at 7-8 c/sec. Secondly, "non-summation type" which showed gradual reduction of the response amplitude in parallel with frequency increase. Their percentages of incidence were 55.5 in the former and 44.5 in the latter. The primary response appeared without augmentation and simply overlapped on the preceding large secondary response at the frequencies above 6-10 c/sec.

From the above-mentioned results, it seems to be likely that there is a close relationship between a fundamental constituent of the driving response and the secondary response especially the large negative wave with a mean culmination time of 170 msec.

REFERENCE

- 1) ITOH, H.: Photic Driving in Optic Nerve Damage. *Tohoku J. exp. Med.*, 97, 21-33, 1969

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