a physiologic spatial variation in the filling of the different sectors, so that some sectors take longer to fill than others. This physiologic phenomenon should not be regarded as pathologic. From the present study, it seems that any sectoral delay in filling of the iris of up to 6 seconds should be considered within normal limits in the monkeys. Repeated iris angiographic examinations in these monkeys revealed no consistent pattern in the delayed filling of the various sectors. The iris vessels showed no fluorescein leakage. Using tracer material and/or electron microscopy, many investigators have demonstrated in monkey and man the presence of tight junctions between endothelial cells of iris blood vessels. This provides a morphologic reason for the absence of fluorescein leakage from the iris vessels. Thus, fluorescein leakage from the iris vessels is not a normal finding in adult rhesus and cynomolgus monkeys. In man, a mild fluorescein leakage in some older individuals and in a very few young persons has been reported. A slow diffusion of fluorescein from the ciliary processes is universal because the capillaries in the ciliary processes are fenestrated and the ciliary epithelium shows “leaky” junctions; this leads to fluorescein staining of the aqueous.

Key words: fluorescein iris angiography, rhesus monkey, cynomolgus monkey, subhuman primates, circulation, intraocular pressure

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References


An Early Peak of the Pattern Reversal Evoked Potential (PREP)

J. R. Zahn and P. Matthews

An early peak of the pattern reversal evoked potential with an implicit time between 30 and 50 msec, and an amplitude of 0.5-1 μV was demonstrated. The peak varies with the spatial frequency of the stimulus (checksize), and, the viewing condition (binocular vs monocular). Further study is being done to determine the origin. Invest Ophthalmol Vis Sci 24:793–795, 1983

The visual evoked potential recorded at the occipital lobe to photostimulator generated white light has been shown to have early peaks with latencies between 20 and 70 msec. It has been suggested that these peaks are subcortical in origin. For some years, checkerboard stimuli, have been used to elicit a visual evoked potential. The earliest reported peak occurs on the average at 50 msec. The present study demonstrates a peak observed earlier than 50 msec.

Materials and Methods. The subject was seated comfortably in front of a television screen subtending 18° upon which 80% nominal contrast, black/white checkerboard patterns (1°56', 28', 14' check sizes) were reversed at 1.88 Hz. His head was held by a chin cup and headrest. He fixed his eyes on a central circular 0.5° red dot. The pattern reversal evoked potential (PREP) was monitored by cup electrodes placed at O₁ and O₂ (reference) of the 10/20 International System. The potential was passed through

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Fig. 1. Two replications for each of the six subjects (1-6). The subject binocularly viewed a 14' checkerboard (18° field, 80% nominal contrast); 400 samples were averaged. For subject 1 the labelling technique is shown. The amplitudes are measured from 1-2 (I), 3-4 (II), and 4-5 (III); implicit times at 2 (I), 4 (II), and 5 (III) from the X. The tracing at the bottom is a noise level, (television screen covered, stimulus presented).

Results. In Figure 1 two tracings obtained for each of the six subjects are shown. The stimulus conditions are described in the legend.

Figure 2 provides the averaged data for each peak across subjects, check sizes, and viewing conditions. The implicit time ranges were 30-50 msec (I), 60-90
Discussion

This study demonstrates an early peak between 30 and 50 msec not previously reported in the literature. Its origin is unclear. It shows binocular input. Its early implicit time suggests that it may arise from subcortical structures, thus providing a probe for diagnosis, as well as, visual system function prior to the more often utilized peak III. Further study and replication from other laboratories is clearly needed before the existence of this peak is verified.

Key words: pattern reversal evoked potential, early component, VEP, visual electrophysiology, subcortical

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