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SILICONE OIL INSULATION EFFECTS ON FLASH ELECTRORETINOGRAM AND VISUAL EVOKED POTENTIAL IN PATIENTS WITH RETINAL DETACHMENT

Poster

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Purpose:

Silicone oil is used in the surgical management of retinal detachment as a tamponade to maintain the retina reattached when indicated. This study investigates the hypothesis that silicone oil causes insulation effects on the retina by affecting its response to light.

Methods:

Electrophysiological responses to a flash stimulus were recorded using full-field electroretinography (ERG) and visual evoked potentials (VEP). Recordings were performed in 9 patients who underwent surgery for retinal detachment, before (1-2 days) and after (2-3 weeks) silicone oil removal (SOR) in both the study and the control eye. Flash ERG and VEP recordings were performed according to the ISCEV standard protocol.

Results:

Statistically significant differences were found in the study eye in the amplitudes of the ERG responses and their corresponding ratios before and after SOR in all conditions tested. No differences were observed in the control eye. The mean ratio of photopic ERG response was 2.8±1.4 for the study and 1.1±0.4 for the control eye (p=0.003). The mean ratio of ERG flicker response was 2.9±2.5 and 0.9±0.3, respectively (p=0.03). Scotopic flash ERG ratio was 1.8±0.7 for the study and 1.1±0.6 for the control eye (p=0.038). No differences were observed for the amplitude and latency of flash VEP response after SOR.

Conclusions:

Silicone oil causes a reduction in flash ERG responses; no effect was found on flash VEP responses. ERGs in eyes filled with silicone oil should not be considered representative of their retinal function, in contrast to VEPs, which are not affected by silicone oil presence.