

ABSTRACT

SUSTAINED VISUAL ATTENTION

STUDIED WITH ECHOPLANAR FUNCTIONAL MRI

AND PARAMETRIC ANALYSIS

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In this pilot study, a functional magnetic resonance imaging (fMRI) method for studying sustained visual attention or vigilance with echoplanar imaging (EPI) and parametric analysis was developed using normals, in preparation for investigating vigilance in attention deficit disorder (ADD). This may be the only study thus far to study to employ a parametric analysis to study sustained visual attention. Five normal subjects (3 males, 2 females), ranging from 18 to 62 years and all right-handed, were tested. A 1.5 T Siemens MR scanner was used to obtain functional images, using a T2* weighted echoplanar image sequence with a field of view (FOV)=240 mm x 240 mm, 64*64 matrix, 5 mm thick slices without interslice gaps, echo time (TE) =29 ms., 90 degree flip angle, interscan interval/repetition time (TR) =5.71 seconds. Each image set contained 28 axial slices, and 165 image sets were obtained over 15 mins. 43 secs. Using a video projector, visual stimuli generated by MacStim were displayed onto a ground-glass screen at the subjects' feet, which the subjects viewed with a mirror. A central fixation cross was provided. At random intervals between 2 to