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**A trial of 18 Hz AVS on attention and concentration in Chronic Fatigue Syndrome**

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Introduction: The effect of AVS on symptoms of decreased attention and concentration was studied in an uncontrolled open clinical trial in members of a CFS support group.

Methods: Volunteer subjects completed written informed consent and received 60 daily sessions of AVS at a target frequency of 18Hz. Pre and post intervention QEEG's, Beck depression scale, Magill pain questionnaire, T.O.V.A., DSM-IV ADHD symptom checklist were done. None of the subjects had Wender Utah criteria for childhood ADHD.

Findings: Out of 15 subjects registered in the study only 3 were found to have normal QEEG's in terms of amplitude abnormalities. The dominant abnormal pattern is high occipital and parietal beta, (9/15) and the second most dominant pattern is high occipital delta (3/15)- these changes appear to be unrelated to medication. As of this writing, 10 subjects have completed the study. Following 60 daily sessions of 15 minutes of AVS at 18HZ there is a significant decrease in Beck depression inventory scores from an average of 17 to 9 ( $p<.05$ ) and DSMIV impulsivity-hyperactivity criteria from 3 out of 9 to 0 out of 9 ( $p<0.01$ ). Consistent with the decrease in self assessed impulsivity is a trend toward decreased measured impulsivity on the T.O.V.A. Anecdotally subjects reported onset of dreaming and improved sleep and higher energy levels, but no instrument was used to assess sleep quality.

Discussion: These results are based on a very small sample and although promising, should be viewed as preliminary. One possible interpretation of the finding of high beta relative amplitude is that people with CFS have QEEG findings similar to those seen in persons on chronic sedative medication. This may be a reflection of toxic events in the brain, or could also be explained by medication effect, since most subjects in this study were on multiple medications. Focus may be improved following AVS, and depression symptoms may be improved. Clearly more study is required, and further trials should include sleep assessment.

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