Frontal Alpha Asymmetry and Psychosocial Interactions in Medical Students: A Pilot Study

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Abstract

Frontal alpha asymmetry (fAA) is a neurophysiological marker for anxiety and depression. This study tests the hypothesis that greater left-sided frontal alpha voltage is associated with negative thoughts about oneself. A group of eight healthy 28-41-year-old right-handed male medical students were subjected to an extensive interactive self-inventory (ISI) evaluating perceptions of their psychosocial interactions. Quantitative EEG (qEEG) was done with eyes closed. fAA in the alpha bandwidth (8-13 Hz) at the F7 and F8 scalp electrodes was the percent difference between mean voltages at F8 minus F7. Significance of associations between fAA and ISI scores was determined by Pearson's product-moment correlation coefficient, at $P \leq 0.05$. "Depressed" scores were positively correlated with right-sided fAA ($P=0.01$). "Relaxed" ($P=0.05$), "regulated" ($P=0.02$), "cooperative" ($P=0.05$) and "dependent scores" ($P=0.004$) were negatively correlated with right-sided fAA. These findings imply that right-sided fAA may be associated with more perceptions of "depressed" psychosocial interactions involving negative thoughts about oneself, as well as, more reliance on others ("dependence" score), less sharing ("cooperative" ISI score), less trust ("regulated" ISI score) and less initiative ("relaxed" ISI score). These results support the hypothesis that right-sided fAA may identify individuals with a predilection for negative thoughts about themselves and negatively-valenced perceptions of their psychosocial interactions.

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