Behavioral Addiction

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Insular Activation During Reward Anticipation Reflects Duration of Illness in Abstinent Pathological Gamblers

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Pathological gambling (PG) is a chronic mental disorder characterized by difficulty inhibiting gambling behavior despite negative consequences. Accumulating evidence suggests that PG has many similarities with substance use disorders. Although brain abnormalities in patients of substance use disorders are facilitated by repetitive drug use and recover partly with drug abstinence, the relationship between brain activity and duration of illness or abstinence of gambling behavior in PG patients remains unclear. Here, using functional magnetic resonance imaging, we compared the brain activity of 23 PG patients recruited from a treatment facility with 27 demographically-matched healthy control subjects during reward anticipation, and examined the correlation between brain activity and duration of illness or abstinence in PG subjects. During reward anticipation, PG patients showed decreased activity compared to healthy controls in a broad range of the reward system regions, including insula and cingulate cortex. In PG patients, activation in left insula was negatively correlated with duration of illness, and showed a modest positive correlation with duration of abstinence. Our findings suggest that insular activation during reward anticipation may serve as a marker of progression and recovery of PG.