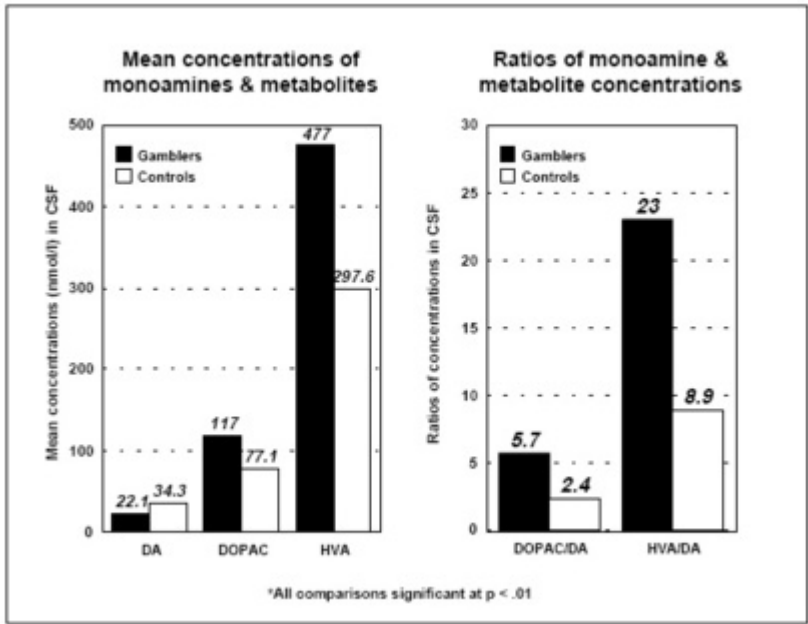


The WAGER, Vol. 2(18) - Dopamine function in pathological gamblers

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Research into the neurobiology of pathological gambling is of great importance. Knowledge of the chemical processes occurring in the brain promises an improved understanding of pathological gambling and addictive behavior in general. Recently, Swedish researchers examined the possibility that monoaminergic neurotransmission (dopamine) is altered in pathological gambling. Ten pathological gamblers (meeting DSM-III-R criteria) were compared with 7 controls on measures of monoamine and metabolite concentrations. Cerebral spinal fluid (CSF) was withdrawn by means of a lumbar puncture. CSF was used because chemicals which can't cross into the bloodstream can diffuse into CSF, where they can be detected. Levels of dopamine (DA) and its metabolites 3,4-dihydroxyphenylacetic acid (DOPAC) and homovanilic acid (HVA) were identified and measured with high performance liquid chromatography-electrochemical detection. This study found that concentrations of DA were lower while DOPAC and HVA concentrations were higher in the CSF of pathological gamblers compared with controls. Consequently, the ratios between DOPAC or HVA and DA were higher among the gamblers. These findings suggest that changes in dopamine levels play a role in the psychopathology of pathological gambling. High levels of dopaminergic activity often are associated with an increased sense of euphoria or excitement. Low levels of dopaminergic activity are often associated with feelings of malaise, dysthymia (depression), and anhedonia (inability to feel pleasure). What remains to be shown, however, is the following: do dopamine level changes result from the influence of pathological gambling, are some people vulnerable to gambling as a result of a deficient dopamine level, or are both of these possibilities associated with a third independent factor.



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