Dopaminergic neuroimaging across the brain

Converging evidence from clinical and animal studies suggests that dysregulated dopamine neurotransmission is associated with addictive behavior. The precise nature of dysregulation however is unclear. It has been suggested that dysregulated dopamine neurotransmission alters processing of the reward and associative memory systems. These alterations lead to maladaptive motivational behavior leading to chemical dependency. The concepts concerning the role of dopamine in addiction are based mostly on the data obtained in laboratory animals. It is therefore unclear whether human addiction, which has unique social and cultural influences, has similar underlying mechanism. Due to lack of a reliable technique to study neurotransmission in the live human brain, the role of dopamine in human addiction has not yet been completely understood. Recently, we developed a single scan dynamic molecular imaging technique for detection, mapping and measurement of dopamine released acutely in the live human brain. This technique will help us study the nature of dysregulated dopamine neurotransmission in addiction.

Biography

Rajendra Badgaiyan completed his MD and MA (Psychology) in India and finished postdoctoral training at University of Oregon, University of Pittsburgh and Harvard University. He completed residency training in Psychiatry at Harvard and currently directs the outpatient addiction clinic and Neuroimaging Laboratory at SUNY Buffalo. He is a member of the editorial boards of 12 journals and Chief/Executive editor of 3 journals. Badgaiyan received several awards for research and he is recognized as the original developer of single scan dynamic molecular imaging technique that allows detection, mapping and measurement of dopamine released during task performance in the live human brain.

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