Imaging Cortical Dopamine Transmission in Alcoholism

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Abstract:
Theamphetamine-induced displacement of D2/3 radiotracers has been validated as a noninvasive measure of the change in extracellular dopamine concentration. Using this approach, previous studies have reported a reduction in amphetamine (or methylphenidate)-induced dopamine release in the striatum of alcoholics relative to healthy controls. These studies conducted with amphetamine and [11C]raclopride that show blunted dopamine release in alcoholics have contributed tremendously to the understanding of the role of dopamine in addiction. An important limitation of these studies is that the measurements of D2/3 receptors and dopamine release were restricted to the striatum because [11C]raclopride does not provide sufficient signal to noise ratio to quantify receptors in extrastriatal areas such as the prefrontal cortex, where the concentration of dopamine D2/3 receptors is much lower than in the striatum. This talk will focus on the validation of [11C]FLB 457 as a tool to measure dopamine release in the cortex and its use in a clinical study in alcoholism.