Addiction

Addiction is defined as a chronic, relapsing disease characterized by compulsive drug seeking and use, despite harmful consequences. Examples include opioid use disorder, nicotine dependence, cocaine dependence, and alcoholism. PET and molecular imaging brain imaging studies have been critically important in helping us to understand the abnormal communications between brain cells that drive these abnormal behaviors. These techniques permit scientists to see and measure changes in different neurotransmitters, a group of chemicals that carry an impulse from one neuron to another and their corresponding receptors. Examples of neurotransmitters include dopamine, serotonin, and acetylcholine. As our understanding of the neurobiology driving this group of diseases evolves, PET and molecular imaging is poised to continue to play a prominent role in diagnosis and treatment.

FIGURE. Mean 2-18F-FA VT/fP PET images demonstrating lower 2-18F-FA binding in subgroup with slower hepatic metabolism of nicotine. Mean PET images for normal metabolizers (left) and those with slower rates of hepatic nicotine metabolism (right) were spatially normalized to same template.
About SNMMI

The Society of Nuclear Medicine (SNMMI) is an international scientific and medical organization dedicated to raising public awareness about nuclear and molecular imaging and therapy and how they can help provide patients with the best health care possible. With more than 18,000 members, SNMMI has been a leader in unifying, advancing and optimizing nuclear medicine and molecular imaging since 1954.

The material presented in this pamphlet is for informational purposes only and is not intended as a substitute for discussions between you and your physician. Be sure to consult with your physician or the nuclear medicine department where the treatment will be performed if you want more information about this or other nuclear medicine procedures.