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Use of PET in the understanding of addiction; abstract

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TITLE: Use of PET in the understanding of Addiction

Objectives : The objective of this research is to understand the factors contributing to addiction in the human and to understand the effects of addiction on the brain.

Methods : There are a variety of PET tracers being used. Each of these is specific to a particular receptor or enzyme. Dopamine receptors can be imaged with [¹¹C]raclopride, Dopamine transporters can be imaged using [¹¹C]cocaine, monoamine oxidase A is imaged using [¹¹C]clorgyline and monoamine oxidase B is imaged using [¹¹C]deprenyl. Using these tracers in combination has allowed an investigation of the contributing factors such as heredity, environment and drug use on addiction

Results : The results of these studies show that is not a single cause for addiction but that heredity, environment and drug use all play an important part in drug addiction. This understanding has led to improved methods in the treatment of drug addiction. The number of available dopamine receptors in the brain has a significant correlation with the likelihood of addiction and that the number can be changed with changes in environment or with treatment.

Conclusions : Addiction is not a simple disease. There are several causes and these factors can be influenced by outside forces.

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