

The Spotless Mind

Nikola Mrvaljevic

ELE482

Date: April 16, 2007

Right now in USA, there are 1.9 million Americans that are suffering from some form of post-traumatic stress disorder (PTSD). If one would recall traumatic event it could have almost the same effect on the person as the event itself.

Clinical psychologist Alain Brunet of McGill University in Montreal discovered that Propranolol has the effect on human brain when it comes to traumatic thoughts.

Propranolol is a non-selective beta blocker that is mostly used in the treatment of hypertension. It was the first beta blocker that was developed and sold successfully. Today, it is sold under the trade name Inderal and it is produced by AstraZeneca.

Complete explanation of how this drug works is explained below:

1. Trauma triggers the amygdala to release stress hormones, which enhance memory formation in the brain.
2. Memories of the trauma are first stored in the hippocampus. Then a chemical reaction encodes them into neurons in the cerebral cortex, cementing them into long-term storage.
3. When a victim recalls the trauma, the memory transfers back to the hippocampus, where it can trigger the release of more stress hormones.
4. Propranolol blocks the effects of the hormones and softens the victim's perception of the trauma. The brain restores the newly edited memory.

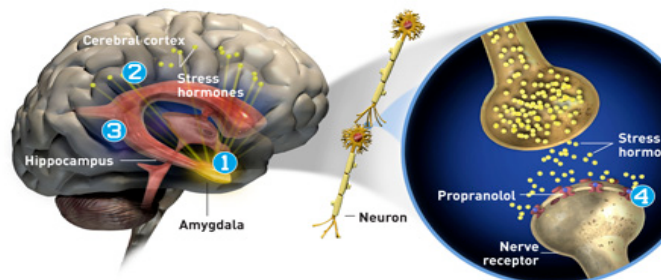


Figure 1 - How it works?

As of now about 20 patients suffering from post-traumatic stress disorder have been taking propranolol. The results were promising. What is the essential goal is do develop a pill that would be able to erase even the darkest memories to a point where, even if they would be recalled, they would not create major stress problems.

The drug is not FDA approved yet.

Sources:

- A general physiologically based pharmacokinetic model. Introduction and application to propranolol, David G Levitt, Department of Physiology, 6-125 Jackson Hall, 321 Church St. S. E., Minneapolis, MN 55455, USA
- <http://www.popsci.com/popsci/medicine/7001525ad18aa010vgnvc.m1000004eebcddrcrd.html>
- <http://en.wikipedia.org/wiki/Propranolol>