Science Behind New Treatment for Depression:

IV Ketamine Therapy

Thomas Insel, director of the National Institute of Mental Health, has stated, "Recent data suggest that ketamine, given intravenously, might be the most important breakthrough in antidepressant treatment in decades."

There are two very exciting features of IV ketamine to treat depression. First, it is effective in about 70% of patients who have failed to respond to oral antidepressants. Secondly, IV ketamine can provide clinically significant results in hours or days rather than weeks or months. Ketamine works by an entirely different mechanism than current oral antidepressants.

About 17% of the adult population suffers from depression. Only two-thirds of patients with major depressive disorder (MDD) ever experience adequate relief from the current FDA-approved medications. The remaining one-third of patients who fail to respond have treatment-resistant depression (TRD). These people may benefit from treatment with ketamine. Ketamine has been shown to provide rapid, effective relief of depression, bipolar disorder and suicidal ideation. It may also be effective in treatment of PTSD.

Recent studies have shown that depression is associated with neuronal atrophy in the brain, possibly due to loss of neurotrophic factors, chemicals that support growth and maintenance of healthy nerve cells. Perhaps one of the most important neurotrophic factors is BDNF, brain derived neurotrophic factor. Structural abnormalities have been found in certain areas of the brains of depressed patients. Both the prefrontal cortex and the hippocampus have decreased size in patients with severe depression and in laboratory animals exposed to stress. The longer a person has suffered from depression, the greater the loss of volume in these areas of the brain. So not only are there neurochemical imbalances, but also structural abnormalities in the brains of severely depressed patients. When these brain cells atrophy, these individual cells can no longer properly communicate with each other due to loss of synapses between neurons. In theory, this atrophy and loss of connections leads to decreased control of emotions and moods due to decreased ability of certain parts of the brain to communicate with other brain regions.

The good news: As astounding as it may seem, this loss of brain volume and nerve cell atrophy can be stopped and even reversed by successful treatment with ketamine. IV ketamine produces a rapid and significant release of BDNF. This, in turn, restores neuronal communication through the process of synaptogenesis.

The FDA-approved oral medications for depression typically take weeks or months to become effective. If one is not effective, others can be substituted until effective results are obtained. This may take several months or years. Eventually, about two-thirds of patients achieve adequate relief of their depression with these medications. Therefore, about one-third of depressed patients fail to achieve adequate relief from current FDA-approved oral medications and are referred to as having TRD. IV ketamine is typically reserved for these people who have not responded adequately to oral antidepressants.

For further information about the use of IV ketamine for treating depression and patient testimonials, please visit our website KetamineMichigan.com and KetamineAdvocacyNetwork.org.

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