American Psychiatric Association Task Force Report Identifies Potential Value of NeuroRx Active Ingredient for Treatment of Depression

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Findings note the transient nature of ketamine effects and paucity of promising experimental NMDA antagonists

WILMINGTON, Delaware, October 21, 2015 /PRNewswire/ --

The active ingredient of Cyclurad™ byNeuroRx, Inc has been identified as potentially promising in the treatment of depression in this month's report by the American Psychiatric Association Task Force on Novel Biomarkers and Therapeutics. The report is published in the October edition of the American Journal of Psychiatry.[1]

The APA Task Force identified D-cycloserine as one of only two molecules currently on the research horizon that shows promise for repeated administration in the treatment of depression via modulation of the NMDA receptor. D-cycloserine is one of the two active ingredients of Cyclurad, an investigational drug therapy being developed by NeuroRx, Inc. The task force report was an entirely independent professional assessment, based on published literature and not coordinated with NeuroRx or any other commercial enterprise.

The NMDA receptor is a molecular receptor on the surface of brain cells that modulates the speed with which thoughts are generated. Modulation of the NMDA receptor as a key to unlocking depression has gained widespread attention in scientific literature and the media through the increasing popularity of off-label administration of Ketamine to treat acute depression. Four randomized controlled trials have documented the repeatability of this effect upon initial administration of Ketamine. The task force conducted an extensive review of the scientific literature and concluded that, "*Current data provide compelling evidence that the antidepressant effects of ketamine infusion are both rapid and robust, albeit transient*." The report also highlighted the short-term nature of the Ketamine response and the documented incidence of hallucinations and other psychomimetic side effects as limiting the utility of Ketamine in isolation for the treatment of depression.

The task force findings continued with a comprehensive analysis of all currently investigational molecules that act on the NMDA receptor and may be valuable in the treatment of depression. The study reported that *"The [APA] task force also analyzed the findings of several randomized, controlled trials of other NMDA antagonists, … D-cycloserine and rapastinel significantly reduced depressive symptoms without psychotomimetic and dissociative effects*."

The task force report concluded that "*Among the other NMDA antagonists studied to date, most intriguing are the recent studies of high-dose D-cycloserine and rapastinel*." D-cycloserine is being developed by NeuroRx, Inc., as an oral agent while thus far repastinel efficacy has been reported only with intravenous administration.

This report is the second independent, peer-reviewed confirmation of the potential value of D-cycloserine in extending the effect of Ketamine in the treatment of acute depression. Writing in the Journal of Clinical Psychiatry, Prof. Dan V. Iosifescu of the Icahn School of Medicine stated, *"In this context, the study [of Cyclurad] represents an important addition to the emerging literature on maintaining clinical response after an initial Ketamine treatment…D-cycloserine has several advantages. It can beadministered orally and has demonstrated safety and tolerability for long term use."[2]*

More than 500 patients with acute suicidality in bipolar depression die every day, primarily from suicide. NeuroRx, a clinical-phase pharmaceutical company with offices in Delaware and Israel, is preparing for a phase II/III clinical trials in the US and Europe which will attempt to further demonstrate the benefit of Cyclurad™ (D-cycloserine combined with Lurasidone) in extending the therapeutic effect of Ketamine for patients with acute suicidality in bipolar depression.

Two early phase clinical reports, involving 26 and eight patients respectively, published in the scientific literature (authored by Heresco Levy[3] and Kantrowitz[4]) have demonstrated more than a 50% reduction in symptoms of depression and a 75% reduction in suicidal ideation.

Inventor Prof. Daniel Javitt. M.D., Ph.D. said "We are delighted by the thorough analysis and sober conclusions of the APA task force in recognizing that D-cycloserine may play a critical role in addressing the major unmet need in bipolar depression treatment, including the high risk of suicidal behavior. We hope to demonstrate the safety and efficacy of D-cycloserine based therapy in order to make this treatment broadly available."

About Bipolar Depression

More than three million Americans have Bipolar Depression, once referred to as manic depression[5] a subset of whom have active suicidality. 500 people with this condition across the OECD tragically end their lives each day. Those with bipolar depression are far more likely to commit suicide compared with patients who have other forms of depression.[6] Between 25%

and 50% will attempt suicide at some point in their lives. Overall, patients with treatment resistant depression from all causes cost the healthcare system more than $120 billion annually.

About NeuroRx, Inc.

NeuroRx, Inc., is a privately-funded, clinical stage pharmaceutical company that is developing Cyclurad™, a proprietary formulation of D-cycloserine and Lurasidone, intended for the treatment of acute suicidality in bipolar depression, a condition for which there is currently no approved medication. The Company is conducting R&D activities in the United States and Israel. More information at http://www.neurorxpharma.com

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