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Pregnenolone for the Treatment of L-DOPA-induced Dyskinesia in Parkinson's disease

 This grant builds upon the research from a prior grant: [5-alpha-reductase Inhibition for the Treatment of Levodopa-induced Dyskinesia](#)

Study Rationale:

Neurosteroids are substances that occur naturally in the brain and help regulate and modulate the activity of brain cells. In previous studies, the investigators demonstrated that inhibiting an enzyme involved in the synthesis of a neurosteroid called 5 alpha reductase (5AR) dampens involuntary movement, or dyskinesia, in models of Parkinson's that only affects one side of the body. The researchers are now trying to understand which specific neurosteroid(s) is responsible for the observed protection from dyskinesia. They found that inhibiting this enzyme results in a specific accumulation of the neurosteroid pregnenolone, which has been shown to have therapeutic properties in dopamine-related disorders. In Parkinson's the brain gradually stops making dopamine, a chemical that helps send signals in the brain.

Hypothesis:

Given the preliminary results, the team hypothesizes that pregnenolone may play a role in the ability of 5AR inhibitors to inhibit dyskinesia.

Study Design:

In this study, they intend to investigate pregnenolone as a therapeutic agent to treat dyskinesia in models of Parkinson's. They will also investigate the molecular mechanism responsible for this effect.

Impact on Diagnosis/Treatment of Parkinson's Disease:

The appearance of dyskinesia represents a major challenge for the management of Parkinson's using levodopa. Hence, there is a high need for effective approaches to treating levodopa-induced dyskinesia.

Next Steps for Development:

Pregnenolone is a naturally occurring neurosteroid that has shown therapeutic properties in a number of clinical trials. If results are positive, this study may be rapidly translated into a clinical investigation in Parkinson's patients.

Researchers

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