Pilot Study to Evaluate Pimavanserin for the Treatment of Motor and Behavioral Symptoms of Tourette Syndrome

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Objective

To determine whether pimavanserin has an effect on motor and behavioral aspects of Tourette syndrome (TS).

Background

Pimavanserin is a serotonin 2A receptor inverse agonist and antagonist approved by the Food and Drug Administration for treatment of hallucinations and delusions in Parkinson's disease psychosis.[1] Numerous studies support a role of serotonin in modulating TS symptoms and the co-morbid obsessive-compulsive behavior.[2,3]

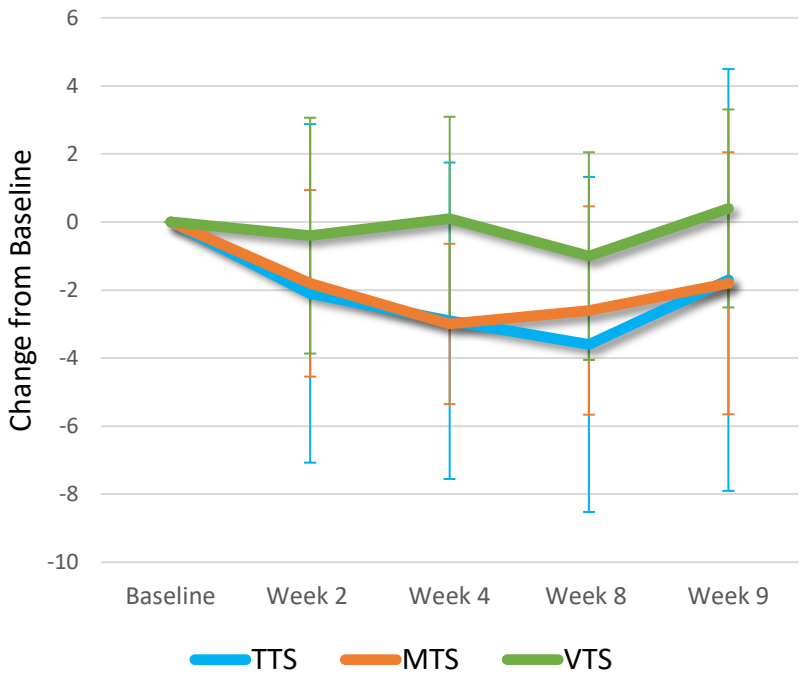
Methods

In this open-label study of patients, 18 years or older with TS, pimavanserin was titrated to 34 mg/day over one week. Participants continued taking this dose for an additional seven weeks. There was a 2-week washout at the end of the study.

Tic severity, the primary outcome measure, was assessed by the Yale Global Tic Severity Scale Total Tic Severity score (YGTSS-TTS). Secondary outcome measures included changes in the motor tic severity score (YGTSS-MTS), vocal tic severity score (YGTSS-VTS), the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), the Tourette Syndrome Clinical Global Impression of Change (TS-CGIC), the Tourette Syndrome-Patient Global Impression of Impact (TS-PGII), and the Gilles de la Tourette Syndrome – Quality of Life scale (GTS-QOL).

Measures were administered at baseline and at Weeks 2, 4, 8 and 9.

Change in Yale Global Tic Severity Scale Scores



Results ^

We enrolled 12 patients, but two dropped out after Week 2 due to side effects of drowsiness and weight gain. In the 10 patients who completed the study [age, 34 (12.9)], the baseline TTS was 34 (9.3). This decreased by 3.6 (4.9) points at Week 8, a 12% reduction in tic severity ($p = 0.03$). This small improvement may not be clinically important. There was a non-significant improvement in YBOCS scores, -5.4 (8.4). All 10 patients reported improvement in the GTS-QOL, 17.1 (15.4). No serious adverse events were reported in patients who completed the study.

^Values given as mean (standard deviation).

Conclusions

The results of this pilot, open label, study suggest that pimavanserin is a safe treatment and associated with improvement in both objective and subjective measures symptoms in TS and its behavioral co-morbidities.

These encouraging findings warrant further studies by a larger, placebo-controlled trial.

References

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3. Rothenberger A, Roessner V. Psychopharmacotherapy of obsessive-compulsive symptoms within the framework of Tourette syndrome. *Curr Neuropharmacol*. 2018;17(8):703-9.