

## INGREZZA® (valbenazine) Capsules in Adult Patients with Tardive Dyskinesia and Mood Disorder

Thank you for contacting Neurocrine Biosciences with your unsolicited Medical Information request regarding the long-term use of INGREZZA (valbenazine) capsules in patients with tardive dyskinesia and mood disorder (e.g. major depressive disorder, bipolar disorder).

INGREZZA is a vesicular monoamine transporter 2 (VMAT2) inhibitor indicated for the treatment of adults with tardive dyskinesia.<sup>1</sup>

The long-term use of valbenazine (VBZ) in participants with tardive dyskinesia (TD) and mood disorder (MD) was evaluated in multiple studies. Please refer to the brief summaries of the results below.

### KINECT 3: Phase 3 Double-blinded VBZ Extension Period

KINECT 3, a randomized, double-blind, placebo-controlled (DBPC) Phase 3 study, was designed to assess the efficacy, safety, and tolerability of VBZ in the treatment of adults with TD. Participants who completed the DBPC period continued with a 42-week double-blind VBZ extension (VE) period and a 4-week drug-free follow-up period. Data from the KINECT 3 study were analyzed post-hoc to evaluate the long-term effects of VBZ in adults with TD and MD.<sup>2</sup>

In participants with MD (n=51), baseline TD severity (as measured by the Abnormal Involuntary Movement Scale [AIMS] mean scores by blinded central raters) were 11.4 and 10.9, respectively, for the VBZ 40 and 80 mg/day dose groups. At Week 48, AIMS mean score changes from DBPC baseline were -4.2 and -5.8, respectively, for the VBZ 40 and 80 mg/day dose groups. The mean AIMS scores changes from baseline at Week 52 (during the 4-week period following discontinuation of VBZ) were -2.7 and -1.6 for the VBZ 40 and 80 mg/day groups, respectively. At Week 48, the mean Clinical Global Impression of Change-Tardive Dyskinesia (CGI-TD) scores were 2.2 and 2.0, respectively, for the VBZ 40 and 80 mg/day groups. The mean CGI-TD scores at Week 52 increased to 2.8 and 3.6 for the VBZ 40 and 80 mg/day groups, respectively.<sup>2,3</sup>

In the pooled long-term safety data, the 3 most commonly reported TEAEs for the MD subgroup (n=121) were headache (12.4%), urinary tract infection (10.7%), and somnolence (9.1%). Mean psychiatric scales scores (Young Mania Rating Scale, YMRS; and Montgomery-Asberg Depression Rating Scale, MADRS) generally remained stable in participants with TD and MD during long-term VBZ treatment.<sup>4</sup>

### KINECT 4: Phase 3, Open-label, Long-term Study

KINECT 4 is an open-label, long-term (48-week open-label treatment period and a 4-week drug-free follow-up period) Phase 3 study to evaluate the safety and tolerability of VBZ in adults with TD. Participants received a starting dose of once-daily VBZ 40 mg, which was escalated to 80 mg at the end of Week 4 if both of the following criteria were met: CGI-TD score of  $\geq 3$  (minimally improved to very much worse) and acceptable safety/tolerability with the 40 mg dose, based on investigator judgment. From Weeks 4 to 48, a decrease to 40 mg was allowed if the participant was unable to tolerate the dose increase (80→40 mg group). Participants who were unable to tolerate the 40 mg dose were discontinued from the study. Effectiveness was assessed using the AIMS total score (sum of items 1-7), based on consensus scoring by 2 blinded central AIMS video raters (at baseline, Week 8 [first visit after dose escalation] and Week 52 [during the 4-week period following discontinuation of VBZ]) and by the investigator or site rater (at each study visit).<sup>5</sup>

Data from KINECT 4 were analyzed post-hoc to evaluate the long-term effects of VBZ in adults with TD and MD (n=44). In the MD group, baseline TD severity (as measured by the AIMS mean scores by site raters) were 13.1 and 15.7, respectively, for the VBZ 40 and 80 mg/day dose groups. At Week 48, AIMS mean score change from baseline were as follows: VBZ 40mg (n=6): -10.2; 80 mg (n=22): -11.6. The

AIMS mean score change from baseline to Week 52 (end of drug-free period), were -0.7 and -6.6 for the VBZ 40 and 80 mg/day dose groups, respectively.<sup>5</sup>

Within the MD subgroup, 7% of participants discontinued due to TEAEs. TEAEs reported in  $\geq 10\%$  of participants in the MD subgroup were urinary tract infection (18.2%) and headache (15.9%). Psychiatric status remained stable from baseline to Week 48: MADRS, -0.3; YMRS, -0.3. Most participants (95%) had no change in the Columbia-Suicide Severity Rating Scale (C-SSRS) score during the study. In participants with no suicidal ideation at baseline (C-SSRS score=0), 93% of the MD subgroup continued to have no suicidal ideation throughout the study (baseline to Week 52). Of the 5 participants who had suicidal ideation at baseline (C-SSRS score=1 to 3), none had any worsening during the study.<sup>5</sup>

### 1506: Phase 3b, Long-Term, Open-Label, Rollover Study

The open-label, rollover study included participants who completed KINECT 3 or KINECT 4 (48 weeks of treatment and 4-week drug-free follow-up period). Participants in the rollover study received treatment for up to 72 weeks or until VBZ became commercially available. All rollover study participants received once-daily VBZ 40 mg for 4 weeks. At Week 4, dosing was escalated to 80 mg based on tolerability and clinical assessment of TD. A dose reduction to 40 mg was allowed after Week 4 if 80 mg was not tolerated, and participants unable to tolerate 40 mg were discontinued from the study.<sup>6</sup>

Data from the rollover study were analyzed post-hoc to further assess the long-term safety and tolerability of once-daily VBZ in adults with TD and MD (n=56). The percentages of participants in the MD group with a Clinical Global Impression of Severity-TD (CGIS-TD) score  $\geq 2$  at baseline were 0% (n=0/12) and 24.4% (n=10/41) for the 40 and 80mg/day groups, respectively. At Week 48, the percentages of MD participants with a CGIS-TD score  $\leq 2$  were as follows: VBZ 40mg: 50.0% (n=2/4); VBZ 80mg: 93.8% (n=15/16).<sup>6</sup>

During treatment initiation (40 mg for 4 weeks), 14.3% of all MD participants had any TEAE. Discontinuation due to a TEAE was reported in 3.6% of all MD participants. Based on available C-SSRS data, 94.6% (n=53/56) of the MD subgroup had no suicidal ideation at baseline (C-SSRS score=0). 96.2% (n=51/53) of the MD subgroup continued to have no emergence of suicidal ideation at any time during the rollover study. Among participants who had some suicidal ideation at baseline (C-SSRS score=1 to 3), none had any worsening in C-SSRS score at any time during treatment. Furthermore, there were no clinically important changes in laboratory parameters, vital signs, or ECG parameters.<sup>6</sup>

**This letter and the enclosed material are provided in response to your unsolicited medical information inquiry. Please feel free to contact Neurocrine Medical Information at (877) 641-3461 or [medinfo@neurocrine.com](mailto:medinfo@neurocrine.com) if you would like to request additional information.**

#### References:

1. INGREZZA [package insert]. San Diego, CA: Neurocrine Biosciences, Inc.
2. Correll CU, et al. Long-Term Effects of Valbenazine (NBI-98854) in Subjects with Tardive Dyskinesia and Mood Disorder. Poster presented at the annual meeting of The College of Psychiatric and Neurologic Pharmacists; April 22-26, 2017; Phoenix, AZ.
3. Correll CU, et al. Efficacy of Valbenazine (NBI-98854) in Treating Subjects with Tardive Dyskinesia and Mood Disorders. Poster presented at the annual meeting of the American Psychiatric Association; May 20-24, 2017; San Diego, CA.
4. Josiassen RC, et al. Long-Term Safety and Tolerability of Valbenazine (NBI-98854) in Subjects with Tardive Dyskinesia and a Diagnosis of Schizophrenia or Mood Disorder. Poster presented at the annual meeting of the American Psychiatric Association; May 20-24, 2017; San Diego, CA.
5. Lindenmayer JP, et al. Long-Term Valbenazine Treatment in Patients with Schizophrenia/Schizoaffective Disorder or Mood Disorder and Tardive Dyskinesia. Poster presented at the annual meeting of the American Psychiatric Association; May 5-9, 2018; New York, NY.
6. Grigoriadis D, et al. Long-Term Effects of Valbenazine on Tardive Dyskinesia in Patients with Schizophrenia/Schizoaffective Disorder or Mood Disorder: Results from an Open-Label, Rollover Study. Poster presented at the American College of Neuropsychopharmacology annual meeting; December 9-13, 2018; Hollywood, FL.

**Enclosures:**

- A. INGREZZA [package insert]. San Diego, CA: Neurocrine Biosciences, Inc.
- B. Correll CU, et al. Long-Term Effects of Valbenazine (NBI-98854) in Subjects with Tardive Dyskinesia and Mood Disorder. Poster presented at the annual meeting of The College of Psychiatric and Neurologic Pharmacists; April 22-26, 2017; Phoenix, AZ.
- C. Correll CU, et al. Efficacy of Valbenazine (NBI-98854) in Treating Subjects with Tardive Dyskinesia and Mood Disorders. Poster presented at the annual meeting of the American Psychiatric Association; May 20-24, 2017; San Diego, CA.
- D. Josiassen RC, et al. Long-Term Safety and Tolerability of Valbenazine (NBI-98854) in Subjects with Tardive Dyskinesia and a Diagnosis of Schizophrenia or Mood Disorder. Poster presented at the annual meeting of the American Psychiatric Association; May 20-24, 2017; San Diego, CA.
- E. Lindenmayer JP, et al. Long-Term Valbenazine Treatment in Patients with Schizophrenia/Schizoaffective Disorder or Mood Disorder and Tardive Dyskinesia. Poster presented at the annual meeting of the American Psychiatric Association; May 5-9, 2018; New York, NY.
- F. Grigoriadis D, et al. Long-Term Effects of Valbenazine on Tardive Dyskinesia in Patients with Schizophrenia/Schizoaffective Disorder or Mood Disorder: Results from an Open-Label, Rollover Study. Poster presented at the American College of Neuropsychopharmacology annual meeting; December 9-13, 2018; Hollywood, FL.