Remission With Lumateperone 42 mg Adjunctive to Antidepressant Therapy in Patients With Major Depressive Disorder: Analysis of Short-Term and Long-Term Trials

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Background

- Major depressive disorder (MDD) is a prevalent and complex psychiatric condition, affecting ≈185 million individuals worldwide[1]
- In patients with MDD, remission rates are low (≈25%) following first-line treatment and decline further with subsequent treatments[2]
- Failure to achieve remission is associated with reduced quality of life and increased relapse rates,[3] underscoring the importance of remission as a key goal of MDD treatment
- Lumateperone is an atypical antipsychotic indicated for: treatment of schizophrenia in adults; treatment of depressive episodes associated with bipolar I or II disorder (bipolar depression) in adults, as monotherapy and as adjunctive therapy with lithium or valproate; and treatment of MDD in adults as adjunct to antidepressant therapy (ADT)[4]
  - Lumateperone is a simultaneous modulator of serotonin, dopamine, and glutamate neurotransmission[5]
  - Specifically, lumateperone is a potent serotonin 5-HT_{2A} receptor antagonist, a dopamine D_2 receptor presynaptic partial agonist and postsynaptic antagonist, a D_1 receptor-dependent indirect modulator of glutamatergic AMPA and NMDA currents, and a serotonin reuptake inhibitor[5]
  - This novel mechanism of action, characterized by its multimodal effects, may confer robust efficacy with improved tolerability compared with current treatment options
- The efficacy and safety of lumateperone 42 mg adjunctive to ADT was demonstrated in 2 Phase 3, randomized, double-blind, placebo-controlled studies (Study 501 [NCT04985942]; Study 502 [NCT05061706]) and an open-label extension study (OLE; Study 503 [NCT05061719]) in patients with MDD with inadequate ADT response[6-8]
  - The primary and key secondary endpoints were met in both short-term studies, with lumateperone 42 mg + ADT significantly improving Montgomery-Åsberg Depression Rating Scale (MADRS) Total score and Clinical Global Impression-Severity (CGI-S) score, respectively, vs placebo + ADT at Day 43; efficacy was maintained throughout the 26-week OLE
  - Lumateperone 42 mg + ADT was generally well tolerated in both short- and long-term studies
- This analysis of Studies 501, 502, and 503 evaluated MADRS Total score remission rates in patients with MDD with inadequate ADT response

Methods

- Efficacy data were pooled for the lumateperone 42 mg + ADT group and the placebo + ADT group from the short-term Studies 501/502; data were presented for the long-term Study 503
- Study 501 and Study 502 enrolled adults (18-65 years old) who met *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) criteria for MDD with inadequate response to 1-2 ADTs in the current depressive episode (defined as <50% improvement according to the Antidepressant Treatment Response Questionnaire)
  - Patients were experiencing a major depressive episode (MADRS Total score ≥24, CGI-S score ≥4) and had Quick Inventory of Depressive Symptomatology-Self Report-16 item score ≥14 at screening and baseline
  - Patients were randomized 1:1 to 6-week, double-blind placebo + ADT or lumateperone 42 mg + ADT
- Patients who safely completed double-blind treatment could enroll in Study 503 to receive 26-week, open-label, oral, once-daily lumateperone 42 mg + ADT
  - Screening for the OLE occurred on the last visit of the lead-in study (lead-in study Day 43, OLE Day 1)
- In pooled Studies 501/502 and Study 503, efficacy was evaluated in the overall populations and in patient subgroups (age, type of ADT, and baseline MADRS severity), using logistic regression in the placebo-controlled studies and descriptive statistics in the OLE
- MADRS remission (MADRS Total score ≤10), complete remission (MADRS Total score ≤5), and sustained remission (defined at each visit as MADRS Total score ≤10 at the visit and MADRS Total score ≤10 maintained at all following visits) were assessed

Results

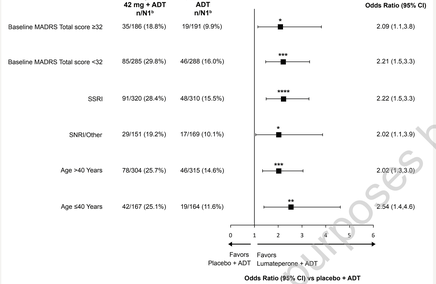
Patient Population

- The modified intent-to-treat (mITT) population comprised 950 patients (lumateperone + ADT, n=471; placebo + ADT, n=479) in the pooled Studies 501/502
- In Study 503, 809 patients were enrolled and treated with lumateperone + ADT
- For Studies 501/502 and Study 503, the majority of patients were female (67.7% and 68.9%, respectively) and White (86.0% and 88.2%, respectively)

Efficacy

- In pooled Studies 501/502, MADRS Total score remission rates were significantly greater ($P<.0001$) with lumateperone + ADT (25.5%) vs placebo + ADT (13.6%) at Day 43
- Significantly greater MADRS remission rates were observed in patient subgroups with lumateperone + ADT vs placebo + ADT in the pooled population at Day 43 **(Figure 1)**

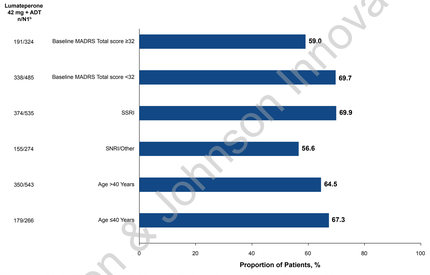
Figure 1. MADRS Total Score Remission[a] Rates at Day 43 in Patient Subgroups: Pooled Studies 501/502



*$P<.05$ **$P<.01$ ***$P<.001$ ****$P<.0001$ Logistic regression model in the mITT population.
[a]Remission was defined as MADRS Total score ≤10 at the visit. [b]N= Number of patients in each subgroup.
ADT, antidepressant therapy; MADRS, Montgomery-Åsberg Depression Rating Scale; mITT, modified intent-to-treat; SNRI, serotonin-norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor.

- Remission occurred in 529 (65.4%) patients at end of open-label treatment in Study 503
- In each of the subgroups analyzed in Study 503, MADRS Total score remission occurred in over 55% of patients receiving lumateperone + ADT at end of treatment (**Figure 2**)
  - Remission rates were similar regardless of age, ADT treatment, or baseline disease severity

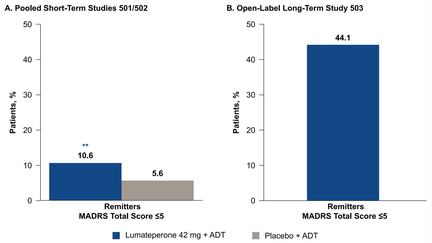
Figure 2. MADRS Total Score Remission[a] Rates at EOT in Patient Subgroups: Study 503



[a]Remission was defined as MADRS Total score ≤10 at the visit. [b]N1= Number of patients in each subgroup in the safety population.
ADT, antidepressant therapy; EOT, end of treatment; MADRS, Montgomery-Åsberg Depression Rating Scale; SNRI, serotonin-norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor.

- Complete remission was achieved by 50 patients (10.6%) with lumateperone + ADT and 27 patients (5.6%) with placebo + ADT ($P<.01$) in the pooled mITT population of Studies 501/502 (**Figure 3A**)
- In Study 503, complete remission was achieved by 357 patients (44.1%) (**Figure 3B**)

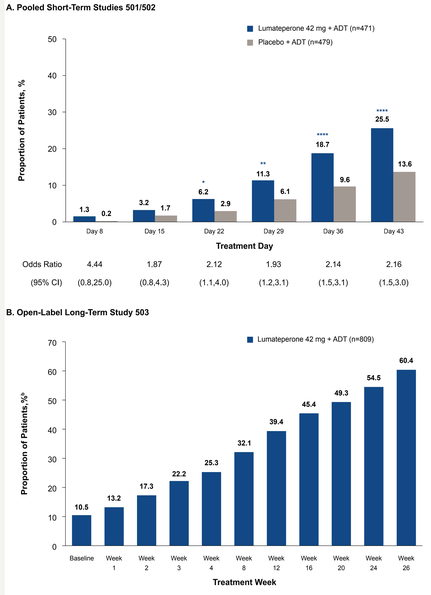
Figure 3. MADRS Total Score Complete Remission[a]



**$P<.01$. Logistic regression model in Studies 501/502.
[a]Complete remission was defined as MADRS Total score ≤5 at Day 43 in Studies 501/502 and end of open-label treatment in Study 503.
ADT, antidepressant therapy; MADRS, Montgomery-Åsberg Depression Rating Scale.

- Sustained remission rates were significantly greater with lumateperone + ADT vs placebo + ADT beginning at Day 22 in the pooled mITT population of Studies 501/502 (**Figure 4A**)
- In Study 503, sustained remission rates ranged from 13.2% at Week 1 to 60.4% at Week 26 **(Figure 4B)**

Figure 4. MADRS Total Score Sustained Remission[a] Rates



*$P<.05$ **$P<.01$ ****$P<.0001$. Logistic regression model in the mITT population of pooled Studies 501/502.
[a]Sustained remission was defined at each visit as MADRS Total score ≤10 at the visit and MADRS Total score ≤10 maintained at all following visits.
[b]Percentage based on the safety population consisting of patients who safely completed the double-blind lead-in studies 501 or 502.
ADT, antidepressant therapy; MADRS, Montgomery-Åsberg Depression Rating Scale; mITT, modified intent-to-treat.

Conclusions

- Lumateperone 42 mg + ADT demonstrated significantly greater MADRS Total score remission rates over placebo + ADT in pooled short-term studies in patients with MDD with inadequate ADT response
- Efficacy was maintained with long-term lumateperone 42 mg + ADT treatment, with ≈2 of every 3 patients achieving remission with 6-month treatment
- These results indicate lumateperone as a promising adjunctive treatment option for patients with MDD with inadequate ADT response

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Disclosures

S Durgam is a former employee of Intra-Cellular Therapies, a Johnson & Johnson company. WR Earley, C Chen, and B Yuan are full-time employees of Intra-Cellular Therapies, a Johnson & Johnson company.

ME Thase has served as an advisor or a consultant for Autobahn Therapeutics; Axsome Therapeutics, Inc.; Clexio Biosciences; Gerson Lehman; GH Therapeutics; H. Lundbeck, A/S; Janssen Pharmaceuticals, Inc.; Johnson & Johnson; Luye Pharma Group, Ltd.; Merck & Company, Inc.; Object Pharma; Otsuka Pharmaceutical Company, Ltd.; Pfizer, Inc.; Sage Pharmaceuticals; Seelos Pharmaceuticals; Takeda Pharmaceutical Company, Ltd.; has received grants from Acadia Inc.; Alkermes; Axsome Therapeutics Inc.; Intra-Cellular, Inc.; Janssen Pharmaceuticals, Inc.; Myriad; National Institute of Mental Health; Otsuka Pharmaceutical Company, Ltd.; Patient-Centered Outcomes Research Institute (PCORI); Takeda Pharmaceutical Company, Ltd.; and has received royalties from the American Psychiatric Foundation; Guilford Publications; Herald House; Wolters Kluwer; W.W. Norton & Company, Inc., and spouse's employment with Open Health, which does business with most major pharmaceutical companies.

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