Patient Acceptability of INP104 Aligns With the Unmet Needs Identified in the I-BEAM Survey

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Introduction

- Migraine is an undertreated disease despite the availability of acute therapies[1]
- Patients have reported dissatisfaction with several aspects of therapy, including speed of onset of pain relief, achieving pain freedom, consistency of effect, headache recurrence, and side effects[2,3]
- INP104 is a novel, investigational drug-device combination product that targets delivery of dihydroergotamine (DHE) mesylate to the upper nasal cavity using Precision Olfactory Delivery (POD®) technology, which results in greater, more consistent drug absorption than a traditional nasal spray[4]
- The safety, tolerability, and exploratory efficacy of INP104 were assessed in the Phase 3 STOP 301 study over 24 or 52 weeks[5]
  - No new safety signals were identified
  - INP104 led to patient-reported pain freedom in 38.0% of patients, most bothersome symptom freedom in 52.1%, and pain relief in 66.3% at 2 hours for the first INP104-treated migraine attack (MA)
- As part of the STOP 301 trial, the acceptability of INP104 was evaluated through a patient acceptability questionnaire (PAQ). The results of the questionnaire were interpreted in the context of unmet needs evaluated through a patient survey and interview in the Impact and Burden of Episodic Acute Migraine (I-BEAM) study[6,7]
  - Both I-BEAM (2019) and STOP 301 (2018-2020) were initiated prior to the launch of gepants and ditans

Objective

- To report unmet needs in the treatment of migraine from the perspective of patients with migraine as assessed by the I-BEAM study
- To report the product acceptability of INP104 over 24 weeks from the pivotal Phase 3 STOP 301 clinical trial

Methods

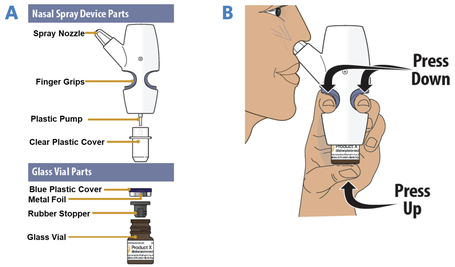
I-BEAM: A Patient Experience Study

- The I-BEAM study consisted of surveys and interviews with participants to better understand patient experiences, including satisfaction levels with current treatments and unmet needs
- The target population was 98% female, age 20 to 50 years, experiencing 1 to 12 MAs per month who "always" or "sometimes" took prescription medication for MAs within the past 6 months
- Recruitment was conducted through social media and referrals (N=50)
- Quantitative Survey (15 minutes; n=50)
  - Obtained diagnosis and treatment information, including past and current treatments, and level of satisfaction
- Qualitative Interview (1 hour; n=49)
  - In-person individual-depth interview (n=24) or web-enabled telephone-depth interview (n=25)
  - Obtained more detailed insight into perspectives surrounding diagnosis and treatment

STOP 301: A Phase 3 Clinical Trial of INP104

- STOP 301 was a Phase 3, open-label, single-group study assessing the safety, tolerability, exploratory efficacy, and product acceptability of INP104 (NCT03557333)
- The study consisted of a 4-week screening period, a 24-week treatment period for all patients, a treatment extension to 52 weeks for a subset of patients, and a 2-week post-treatment follow-up for all patients
- Patients were male or female adults (18-65 years) in good health with a diagnosis of frequent migraine, defined as experiencing a minimum of 2 MAs, with or without aura, each month not qualifying as chronic migraine during the previous 6 months per the *International Classification of Headache Disorders* (version 3 beta)
- During the screening period, patients were on a current "best usual care" treatment. After the screening period, all patients were provided with up to 3 doses/week of INP104 (**Figure 1**) to self-administer nasally (1.45 mg) with all self-recognized MAs over 24 weeks (or 52 weeks)
- A 9-question PAQ asking patients to assess the acceptability, usability, and effectiveness of INP104 was administered at the end of the study. Results from 6 of these questions will be reported here, as the remaining 3 questions relate to dysgeusia, discomfort in the nose, and determining if patients would ask their doctors for a prescription if it were available
  - Patients responded using a 5-item scale from "strongly agree" to "strongly disagree" (or not applicable)

Figure 1. (A) INP104 Product and (B) Actuation of INP104

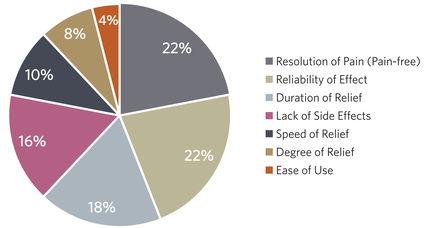


Results

STOP 301[7]

- 360 patients enrolled and 354 received at least 1 dose of INP104, comprising the full safety set (FSS), and took 5099 doses of INP104 over the first 24 weeks
- 74% of patients completed 24 weeks of the study, with 73 patients entering the extension (and 90% of those completed 52 weeks)
- Most patients agreed/strongly agreed that INP104 was easy to use (84%)
- Compared with their previous best usual care:
  - 54% of patients agreed/strongly agreed that INP104 allowed them to return to normal activities faster
  - 56% and 55% of patients agreed/strongly agreed that INP104 worked faster and more consistently, respectively
  - 54% of patients agreed/strongly agreed that INP104 lasted longer (**Figure 3**)

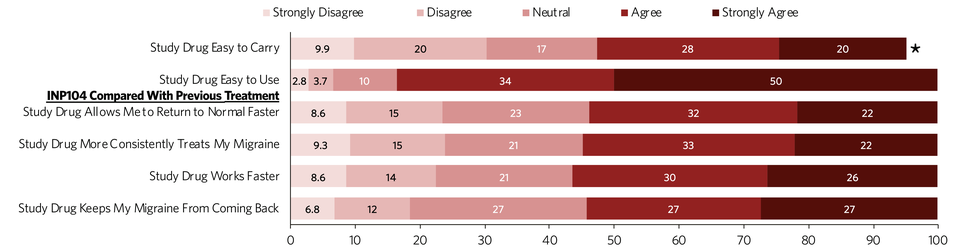
Figure 2. I-BEAM Study: Participant Views on What Is Most Lacking in Current Medication



I-BEAM[6]

- Participant responses included that resolution of pain (22%), reliability of effect (22%), duration of relief (18%), lack of side effects (16%), speed of relief (10%), degree of relief (8%), and ease of use (4%) were lacking in their current therapies (**Figure 2**)
- The most frequently mentioned features of an ideal acute medication for migraine included:
  - Fast-acting (15-30 minutes)
  - Long-lasting (12-24 hours)
  - Providing complete or near-complete relief
  - Able to be taken at any time during the migraine
  - Having few or no side effects, although many patients were willing to accept minor side effects as a trade-off for increased speed and efficacy
  - One medication to relieve all symptoms

Figure 3. STOP 301; PAQ Responses (24-week FSS, N=354)



*Remaining 5% of respondents never used INP104 outside of the home.

Conclusion

- Most patients found INP104 easy to use and carry, and that INP104 provided faster-acting, consistent benefit with longer-lasting relief, and allowed faster return to normal activities compared with their previous best usual care
- Results from the STOP 301 study,[5] including the PAQ, align with the unmet needs identified by the I-BEAM survey: (1) fast-acting; (2) long-lasting; (3) providing complete or near-complete relief; (4) can be taken any time; (5) few/no side effects
- Overall, the results from the PAQ suggest that upper nasal delivery of DHE mesylate may offer a well-tolerated alternative to acute treatments for migraine, while potentially providing the reliable efficacy of the long-established DHE molecule

References

1. Lipton RB, et al. *Headache.* 2018;58:1408-1426. **2.** Lantéri-Minet M. *Eur Neurol.* 2005;53(Suppl 1):3-9. **3.** Holland S, et al. *J Neurol Sci.* 2013;326:10-17. **4.** Shrewsbury SB, et al. *Headache.* 2019;59:394-409. **5.** Smith TR, et al. *Headache.* Published online August 7, 2021. doi:10.1111/head.14184. **6.** Shrewsbury S, Ray S. Presented at: ICH. September 5-8, 2019. IHC-PO-299. **7.** Shrewsbury S, et al. *Cephalalgia.* 2020;40(Suppl 1): 43-44. MTV20-DP-032.

Disclosures and Acknowledgments

Jessica Ailani has received honoraria for consulting from Amgen, AbbVie, Aeon, Biohaven, Eli Lilly and Company, GlaxoSmithKline, Lundbeck, Teva, Impel, Satsuma, Axsome, and Nēsos. She has received stock options from Ctrl M Health for consulting. She has received honoraria for speaking engagements from AbbVie, Amgen, Biohaven, Eli Lilly and Company, Lundbeck, and Teva. Jessica Ailani's institution has received funding for clinical trials for her work as principal investigator from Allergan/AbbVie, Biohaven, Eli Lilly and Company, Satsuma, and Zosano. She has provided advising and editorial services and received honoraria from *Current Pain and Headache Reports, SELF*, Neurology Live, and Medscape. Kate Kennedy is a speaker and trainer for AbbVie and serves on an advisory board for Impel NeuroPharma. TinaMarie Lieu, John Hoekman, Maria Jeleva, Sutapa Ray, Stephen B. Shrewsbury, and Sheena K. Aurora are full-time employees of Impel NeuroPharma and are stockholders in Impel NeuroPharma. John Hoekman and Stephen B. Shrewsbury are officers of Impel NeuroPharma. This research was sponsored by Impel NeuroPharma. Editorial support was provided by IMPRINT Science and funded by Impel NeuroPharma. IMPEL, POD, and the IMPEL Logo are registered trademarks of Impel NeuroPharma.

Presented at PAINWeek Conference, September 7-11, 2021, Las Vegas, NV, USA