# Patients Interviewed in TELESTAR, a Phase 3 Study of Telotristat Etiprate, Report Meaningful Improvement in Carcinoid Syndrome

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## Introduction

- Carcinoid syndrome (CS) often causes diarrhea, flushing, abdominal pain, and other symptoms that impair the quality of a patient's life.[1,2]
- Telotristat etiprate, an oral tryptophan hydroxylase inhibitor, treats CS by reducing serotonin production.
- Telotristat etiprate was evaluated in TELESTAR, a phase 3 study for patients with CS that is inadequately controlled (≥ 4 bowel movements [BMs] per day) by somatostatin analog therapy. Patients were randomized 1:1:1 to receive placebo 3 times daily (tid), 250 mg telotristat etiprate tid, or 500 mg telotristat etiprate tid.
- TELESTAR'S primary endpoint was change from baseline in the number of BMs per day averaged over a 12-week double-blind treatment period.
  - Both dosages of telotristat etiprate significantly reduced BM frequency compared with placebo.
- The predefined definition of clinically meaningful change in the TELESTAR clinical trial was durable response (DR) (≥ 30% reduction in BM frequency for ≥ 50% of study days).
  - Of the 135 participants, DR was observed in 44% of those receiving 250 mg telotristat etiprate tid and 42% of those receiving 500 mg telotristat etiprate tid, compared with 20% of those receiving placebo ($P \leq 0.02$ for each telotristat etiprate dosage versus placebo).

## Objective

- To learn how baseline symptoms of CS and symptom improvement observed in TELESTAR impacted the lives of patients.

## Methods

- TELESTAR clinical sites in 5 countries (Australia, Canada, England, Germany, and the United States) invited all eligible TELESTAR patients to participate in a qualitative telephone exit interview. Patients, clinical sites, and interviewers were blinded to treatment group assignment.
- Interviews were conducted with consenting patients after week 12 (end of double-blind treatment phase).
- Patients were interviewed about baseline symptoms and clinical trial experiences using a semistructured interview guide. Open-ended questions were asked about patients' CS symptoms and the potential daily impact of these symptoms.
- Additional questions assessed (1) change in BM frequency, (2) change in stool consistency, and (3) overall treatment satisfaction.
  - The relationships between responses to Question 1 (changes in BM frequency) and Question 3 (treatment satisfaction) (shown below) were examined. Interview data were summarized with standard qualitative analysis methods using field notes and interview transcripts.

**Question 1. Since you started the study medication, would you say that the number of your bowel movements *now* is…**

1 – A great deal better
2 – Much better
3 – A little better
4 – The same
5 – A little worse
6 – Much worse
7 – A great deal worse

**Question 2. Since you started the study medication, would you say your stool consistency/form *now* is…**

1 – A great deal better
2 – Much better
3 – A little better
4 – The same
5 – A little worse
6 – Much worse
7 – A great deal worse

**Question 3. Overall, how satisfied are you with how the study medication relieved your carcinoid syndrome symptoms?**

1 – Very satisfied
2 – Somewhat satisfied
3 – Neither satisfied nor dissatisfied
4 – Somewhat dissatisfied
5 – Very dissatisfied

## Results

- A total of 35 patients recruited across 16 clinical sites and 5 countries completed the exit interview study between 02 July 2013 and 15 June 2015 (see Table 1 for patient characteristics).

**TABLE 1: TELESTAR Patient Characteristics**

| Characteristic | Interview Sample (n = 35) | Overall TELESTAR Sample (n = 135) |
|---|---|---|
| Age in years (mean) | 62 | 64 |
| Female (%) | 51 | 48 |
| White (%) | 97 | 90 |
| Baseline body mass index | 26 | 25 |
| Baseline BM frequency (BM/day) | 5.76 | 5.70 |
| Average BM frequency reduction over 12 weeks (BM/day) | -1.11 | -1.17 |

Note: Data were based on TELESTAR clinical study report.

## Symptom Improvement (Question 1)

- Overall, 33 participants (placebo:telotristat etiprate 250 mg:telotristat etiprate:500 mg = 9:9:15) provided a response to Question 1.
  - 24 of the interview participants reported improvement in at least 1 CS symptom
  - 21 participants reported improvement (reductions) in BM frequency more than any other symptom.
  - 20 of the 21 (95%) participants reporting BM frequency improvement noted that it was meaningful (Table 2).
  - Participants reported that the reduction in BM frequency allowed them to better enjoy life, leave the house, and participate in more social and physical activities. Related quotes included the following:

*"I definitely feel like I'm not a prisoner in my house, staying 10 feet to the nearest bathroom. I can go out to activities…"*

*"But the biggest change is not having to run to the toilet constantly…You can't live going 20 times a day. I was able to go out more often…"*

**TABLE 2: Report of Meaningful Reduction in Bowel Movement Frequency From Interview Participants Who Answered Symptom Improvement Question 1 (n = 33)**

| Treatment Arm (tid) | Meaningful Reduction in BM Frequency n/N (%) |
|---|---|
| Placebo (n = 9) | 3/9 (33) |
| Telotristat etiprate 250 mg (n = 9) | 7/9 (78) |
| Telotristat etiprate 500 mg (n = 15) | 10/15 (67) |

## Treatment Satisfaction (Question 3) and Durable Response

### Treatment Satisfaction

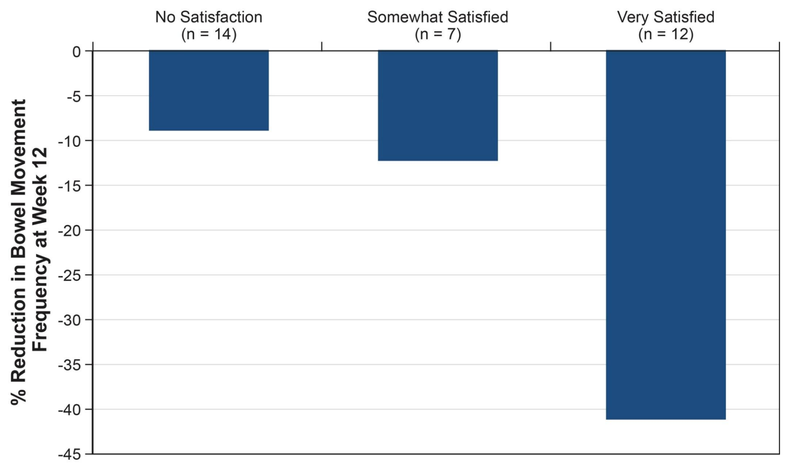
- Overall, 33 participants (placebo:telotristat etiprate 250 mg:telotristat etiprate 500 mg = 9:9:15) answered Question 3.
  - 19 participants (55%) reported being somewhat or very satisfied with treatment in TELESTAR (Table 3).
  - Patients with greater satisfaction reported greater reduction in BM frequency (Figure 1).
  - A correlation (R = 0.66, $P < 0.001$) was seen between reported change in BM frequency (Question 1) and treatment satisfaction (Question 3) (Figure 2).

**TABLE 3: Interview Participants Reports of Treatment Satisfaction (Question 3) by Treatment Arm (n = 33)**

| Treatment Arm (tid) | No Satisfaction | Somewhat Satisfied | Very Satisfied |
|---|---|---|---|
| | n/N (%) | | |
| Placebo (n = 9) | 6/9 (67) | 3/9 (33) | 0/9 (0) |
| Telotristat etiprate 250 mg (n = 9) | 3/9 (33) | 1/9 (11) | 5/9 (56) |
| Telotristat etiprate 500 mg (n = 15) | 5/15 (33) | 3/15 (20) | 7/15 (47) |

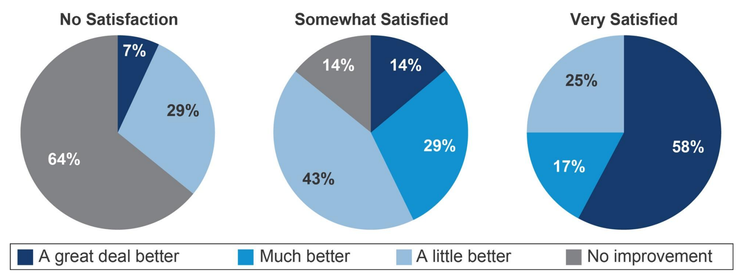
Note: The no satisfaction category included those who answered 3, 4, or 5 to Question 3.

**FIGURE 1: Relationship Between Treatment Satisfaction and Percentage Reduction in Bowel Movement Frequency From Baseline to Week 12 (n = 33)**




Note: Treatment satisfaction was reported in the context of the patient interviews (Question 3). A total of 33 participants pooled across treatment arms answered Question 3. BMs were reported daily on electronic diaries during TELESTAR. The no satisfaction category included those who answered 3, 4, or 5 to Question 3.

**FIGURE 2: Self-reported Bowel Movement Frequency Improvement (Question 1) and Treatment Satisfaction (Question 3) (n = 33)**




Note: A total of 33 participants answered Question 3 from pooled arms (treatment satisfaction): no satisfaction n = 14; somewhat satisfied n = 7; very satisfied n = 12. The no satisfaction category included those who answered 3, 4, or 5 to Question 3.

### Durable Response

- Durable response was seen in 1 of 9 patients receiving placebo, 3 of 9 receiving 250 mg telotristat etiprate tid, and 5 of 15 receiving 500 mg telotristat etiprate tid (Table 4).
- All 8 telotristat etiprate interview participants with DR reported being very satisfied (Question 3) and reported a meaningful reduction in BM frequency during TELESTAR.
- The 1 interview participant who experienced DR on placebo did not report satisfaction with treatment.

**TABLE 4: Report of Durable Response From Interview Participants Who Answered Treatment Satisfaction Question 3 (n = 33)**

| Treatment Arm (tid) | Interview Participants With DR n/N (%) |
|---|---|
| Placebo (n = 9) | 1/9 (11) |
| Telotristat etiprate 250 mg (n = 9) | 3/9 (33) |
| Telotristat etiprate 500 mg (n = 15) | 5/15 (33) |

## Conclusions

- The primary endpoint of TELESTAR, a reduction in bowel movement frequency, was very meaningful to patients. Effective reduction in bowel movement frequency led to improvement in emotional well-being and social and physical function.
- Among the interview participants, treatment satisfaction was strongly associated with decreases in bowel movement frequency.
- Participants with durable response on telotristat etiprate, defined as a 30% reduction in BM frequency for more than 50% of the study period, reported the highest level of treatment satisfaction.

### REFERENCES

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### DISCLOSURE

Authors who are employees of Lexicon Pharmaceuticals, Inc. may own common stock or may have been granted stock options or other equity incentive awards.

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