Vibrating Capsule is Efficacious in Patients with Severe Chronic Idiopathic Constipation (CIC)

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Introduction

- Approximately 50 million Americans report constipation, of whom 28% have moderately severe illness (Am J Gastro 2020;115:895-905).
- The effectiveness of current therapies for severe chronic idiopathic constipation (CIC) is unknown.
- In a recent phase III trial, a vibrating capsule (VC) proved superior to placebo in improving bowel and abdominal symptoms in patients with CIC[1].

Aim

- To determine the efficacy and safety of VC in patients with severe CIC.

Methods and Materials

- We performed a post-hoc analysis of CIC patients (Rome III) who were enrolled in an 8-week phase 3, multicenter, double-blind trial, and randomly received one VC (Vibrant, Yokneam, Israel) or placebo, orally, for 5 days/week.
- Severe CIC was defined as patients who reported 0 complete spontaneous bowel movements (CSBM) during a 2-week baseline period on a daily electronic stool diary.
- Patients with a history of dysphagia or bowel obstruction were excluded.
- Primary outcome measures were percentage of patients with an increase of one (CSBM1), two (CSBM2) or three (CSBM3) CSBM/week, during at least 6 of 8 treatment weeks compared to baseline.
- Secondary outcomes and safety were also assessed.

Results

- 312 CIC patients were enrolled of whom 56% (VC, n=89; placebo, n=86) had severe CIC.
- There were significantly greater CSBM1 (p=0.0007), CSBM2 (p=0.0040), and CSBM3 (p=0.0176), responders in the VC group compared to placebo (Fig 1).
- The straining effort (p=0.0027) & stool consistency (p=<.0001) also improved significantly in the VC group compared to placebo (Fig 2).
- PAC-QOL scores significantly improved in the VC group (p=<0.0001) versus placebo (Table 1).
- The treatment was generally safe, without severe adverse events or diarrhea (Table 2).
- The most common AEs in the VC group were a sensation of mild vibration (11.2%) and abdominal discomfort (2.25%), Table 2.

Figure 1: Primary outcome measures showing proportion of CSBMs responders in patients with severe constipation

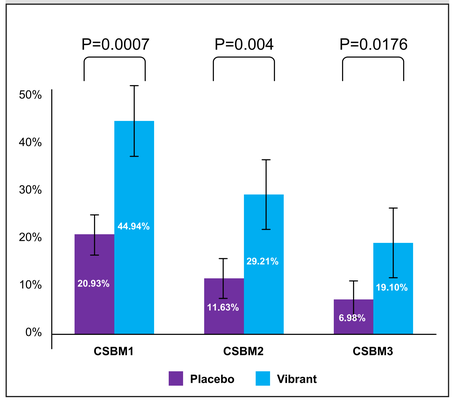

Figure 2: Secondary outcome measures showing straining score and stool consistency in patients with severe constipation

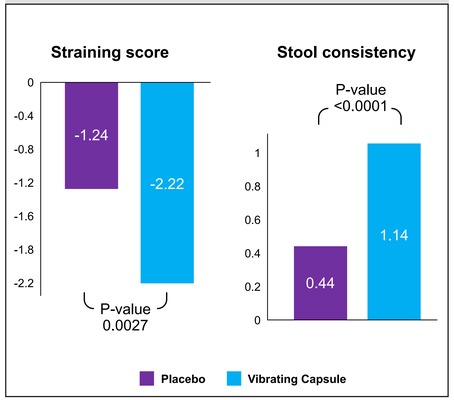

Table 1. Effects of VC on QOL in patients with severe constipation

		Adj. Mean	SE	P-Value
PAQ-QOL Total	Vibrating Capsule. Mode 1	-1.59	0.12	<.0001
	Placebo	-0.86	0.14	<.0001
	Diff. (Active-Placebo)	-0.73	0.16	<.0001
Physical Discomfort	Vibrating Capsule. Mode 1	-1.35	0.11	<.0001
	Placebo	-0.74	0.12	<.0001
	Diff. (Active-Placebo)	-0.62	0.15	<.0001
Psychosocial Discomfort	Vibrating Capsule. Mode 1	-0.80	0.09	<.0001
	Placebo	-0.46	0.11	<.0001
	Diff. (Active-Placebo)	-0.34	0.13	0.0077
Worries and Discomfort	Vibrating Capsule. Mode 1	-1.17	0.13	<.0001
	Placebo	-0.59	0.15	0.0002
	Vibrating Capsule. Mode 1	-0.59	0.18	0.0016
Satisfaction	Active Mode 1	-2.00	0.15	<.0001
	Placebo	-0.97	0.17	<.0001
	Diff. (Active-Placebo)	-1.03	0.20	<.0001

Table 2. Adverse events in severe CIC population

Adverse event	Vibrating Capsule, Mode 1 (n=89) No. of patients (%)	Placebo (n=86) No. of patients (%)
*Adverse events during treatment (combined safety populations including interim analysis groups)		
Any event	23 (25.84)	15 (17.4)
**Sensation of vibration	10 (11.24)	.
Headache	1 (1.2)	1 (1.16)
Urinary tract infection	1 (1.2)	1 (1.16)
Abdominal pain		2 (2.23)
Abdominal discomfort	2 (2.25)	
Vomiting	2 (2.25)	1 (1.16)
Nausea	3 (3.37)	1 (1.16)
Abdominal distention		2 (2.23)
Diarrhea	2 (2.25)	.
Covid-19	1 (1.2)	1 (1.16)
Nasopharyngitis/Bronchitis	2 (2.25)	
Musculoskeletal	2 (1.2)	1 (1.16)

* Data shown for adverse events in at least 1% of the subjects
** Sensation of vibration means: ``I think I felt vibration``. In previous vibrant studies the reports were in both active and placebo arms

Conclusions

- In individuals with severe CIC, VC significantly improved bowel and abdominal symptoms and QOL compared to placebo.
- The VC was safe and well tolerated.
- **Vibrating Capsule is a first in class, novel, non-pharmacological treatment that is efficacious and safe in patients with severe chronic constipation.**

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