Addressing an Emerging Clinical Need: Nasal Metoclopramide's Impact on Diabetic Gastroparesis in Patients Taking GLP-1 Agonists

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Background and Objectives

- Diabetic gastroparesis (DGP) is a chronic upper gastrointestinal disorder characterized by delayed gastric emptying without mechanical obstruction, causing nausea, vomiting, and abdominal pain.[1]
- DGP patients have two to three times greater healthcare costs compared to non-GP diabetic patients (inpatient, emergency department (ED) and outpatient visits).[2]
- Glucagon-like peptide-1 (GLP-1) agonists, used to treat type 2 diabetes, can exacerbate these symptoms by delaying gastric emptying.
- Oral Metoclopramide (OMCP) was the only FDA-approved therapy, until 2020, when Nasal Metoclopramide (NMCP) was approved as the first non-oral treatment for patients with acute and recurrent DGP.[4,5]
- This study compares healthcare resource utilization (HCRU) in DGP patients treated with NMCP vs. OMCP with recent GLP-1 agonist use.

Methods

- A retrospective, matched cohort of NMCP- and OMCP-treated patients (257 per group) was derived from specialty pharmacy data and the Symphony Integrated Dataverse, an open claims database.
- Adult patients with a DGP diagnosis and ≥6 months pre- and post-index (treatment initiation) continuous data were included.
- Propensity score matching (PSM) was applied to balance age, geographic region, insurance type, Charlson Comorbidity (CCI) score, and pre-index healthcare us (hospitalization/ ED visits) between the two study groups.
- This analysis focused on GLP-1 users only; patients with prescription filled ≤6 months (6m) pre-index were analyzed. The following GLP-1 prescriptions were considered: liraglutide, canagliflozin, dapagliflozin, empagliflozin, semaglutide, tirzepatide, bimagrumab, dulaglutide, exenatide and lixisenatide.
- 6-month post-treatment all-cause and DGP-related HCRU (nausea, vomiting, gastroparesis [NV-GP]) were compared using negative binomial regression models, with results presented as incident rate ratios (IRR) and 95% confidence intervals (CI).

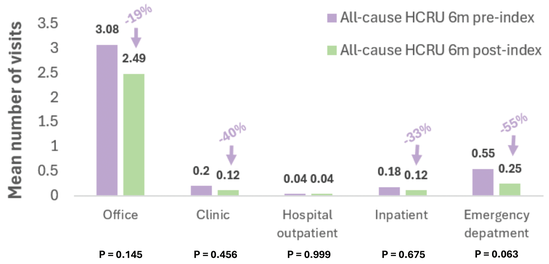
Results

- A total of 51 NMCP and 41 OMCP matched patients were included in the study; baseline and demographic characteristics are presented in **Table 1**.
- NMCP patients were slightly older (55.1 vs. 53.1 years) and had more pre-index hospitalization/ED admissions (31.4% vs. 19.5%).

Table 1: Baseline characteristics

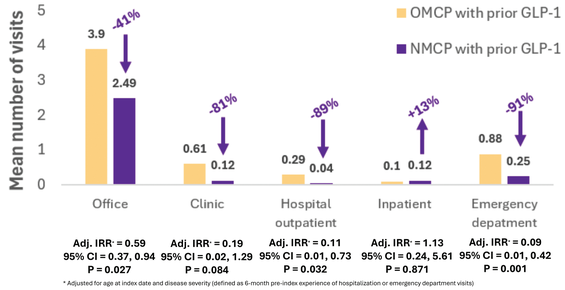
		NMCP (n=51)	OMCP (n=41)
Age	Mean (SD)	55.1 (10.9)	53.1 (9.9)
	18-35	4 (7.8%)	1 (2.4%)
	36-55	23 (45.1%)	26 (63.4%)
	56-65	16 (31.4%)	9 (22.0%)
	66-85	8 (15.7%)	5 (12.2%)
Sex	Female	39 (76.5%)	35 (85.4%)
	Male	12 (23.5%)	6 (14.6%)
Region	North-Central	3 (5.9%)	6 (14.6%)
	North-East	7 (13.7%)	10 (24.4%)
	South	41 (80.4%)	24 (58.5%)
	West	0 (0%)	1 (2.4%)
Payer	Commercial	36 (70.6%)	27 (65.9%)
	Medicaid	4 (7.8%)	2 (4.9%)
	Medicare	11 (21.6%)	12 (29.3%)
CCI Score	Mean (SD)	7 (13.7%)	2.4 (2.3)
	CCI 0	15 (29.4%)	8 (19.5%)
	CCI 1	13 (25.5%)	8 (19.5%)
	CCI 2	8 (15.7%)	12 (29.3%)
	CCI 3	8 (15.7%)	3 (7.3%)
	CCI 4 +	7 (13.7%)	10 (24.4%)
Severity	No inpatient/ED visits	35 (68.6%)	33 (80.5%)
	Yes inpatient/ED visits	16 (31.4%)	8 (19.5%)

Figure 1: Pre- and post-index all-cause HCRU



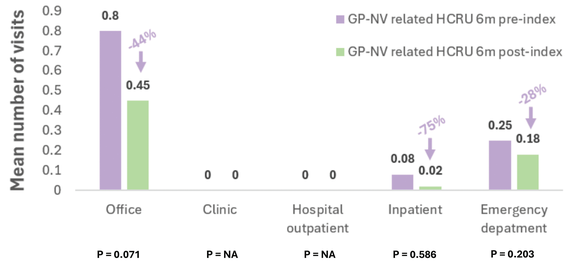
- For NMCP patients, all-cause office, clinic, inpatient, and ED visits decreased. ED visits in particular, were reduced by 55% pre-index vs. post-index (**Figure 1**).

Figure 3: NMCP and OMCP all-cause HCRU



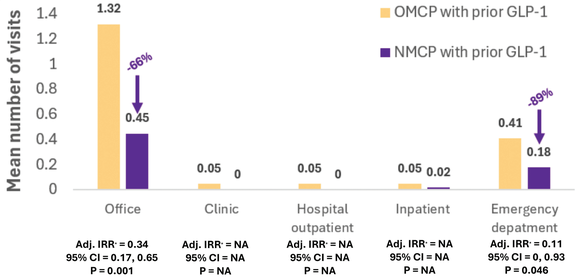
- For all-cause HCRU, treatment with NMCP was associated with a reduction in clinic visits, and a statistically significant reduction in office, hospital outpatient, and ED visits compared to patients treated with OMCP (**Figure 3**).
- All-cause HCRU that were most affected by treatment with NMCP compared to OMCP were ED visits (-91%) (**Figure 3**).

Figure 2: Pre- and post-index NV-GP HCRU



- For NMCP patients, NV-GP related office, inpatient, and ED visits decreased. Inpatient visits decreased by 75% pre-index vs. post-index (**Figure 2**).

Figure 4: NMCP and OMCP NV-GP HCRU



- For NV-GP related HCRU, treatment with NMCP was associated with a reduction in clinic, hospital, and inpatient visits, and a statistically significant reduction in office and ED visits compared to patients treated with OMCP (**Figure 4**).
- For NV-GP related HCRU, no patients treated with NMCP required a clinic or hospital outpatient visit, thereby leading to a 100% reduction compared to OMCP treated patients (**Figure 4**).
- NV-GP related HCRU that were most affected by treatment with NCMP compared to OMCP were clinic and hospital outpatient visits (-100%) (**Figure 4**).

Conclusions

- Patients with prior GLP-1 history had reduced healthcare resource after taking NMCP
- In Patients taking GLP-1, those that took NMCP had fewer healthcare visits compared to those taking OMCP
- NMCP effectively treats gastroparesis in patients on GLP-1 therapy, reducing costly healthcare visits.

Abbreviations CCI = Charlson comorbidity index; CI = confidence interval; DGP = diabetic gastroparesis; ED = emergency department; FDA = Food and Drug Administration; Glucagon-like peptide-1 = (GLP-1); HCRU = healthcare resource utilization; IRR = incidence rate ratios; MCP = metoclopramide; NMCP = nasal metoclopramide; NV-GP: nausea, vomiting, gastroparesis; OMCP = oral metoclopramide; PSM = propensity score matching; SD = standard deviation; 6m = 6 months.

References

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