A Retrospective Observational Analysis on the Total Cost of Care associated with the utilization of CGRPs

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Background

- About 39 million Americans are afflicted with migraines. Migraines are a debilitating exacerbated headache. It is unilateral and can have a duration from a few hours to a few days. Nausea, vomiting, phonophobia and photophobia usually accompany a migraine. Migraines are a common, chronic, incapacitating neurovascular disorder, characterized by attacks of severe headache, autonomic nervous system dysfunction, and in some patients, an aura involving neurologic symptoms[1].
- Migraines are more prevalent in women than men and affect about 15% of the world's population[2]. Since 2018, a new class of drugs which target the trigeminal sensory neuropeptide calcitonin gene-related peptide (CGRP) or its receptor, were approved and entered the market to aid considerably with migraine management. Migraines can be managed with preventive and abortive therapies in combination with lifestyle factors such as healthy diet, restorative sleep and stress management.
- It is estimated that migraines contribute about $17 billion (about $52 per person in the US) in direct costs to the health care industry, which includes sites of care from emergency department use to PCP visits to laboratory and diagnostic services costs[3].
- With the introduction of CGRPs in the past few years (although more expensive compared to generic migraine therapy), they were shown to have decreased expenditures for acute and preventative migraine perscriptions[4]. The goal of this analysis was to determine if the total cost of care decreased as a result of CGRP therapy, despite higher prescription costs.

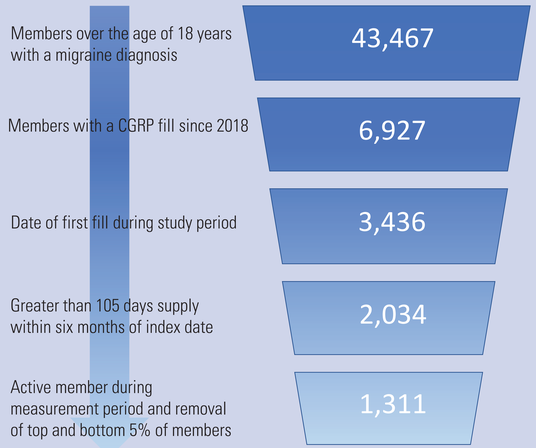
Objectives

- Primary Objective: Characterize the total health care utilization and cost of commercial health plan members diagnosed with acute migraine who are treated with a CGRP antagonist using a real-world retrospective claims analysis.
- Secondary Objectives: Evaluate member migraine drug therapy utilization, and opioid utilization. Summarize member utilization and costs of services, including prescriptions drugs, radiology, emergency room, urgent care, and physician office visits.

Methods

- A retrospective observational analysis was done using medical and pharmacy claims from a regional health plan in New York state providing commercial coverage to approximately 720,000 members.
- The index date is defined as the first fill of a CGRP within the measurement period of July 1, 2020, to June 30, 2022
- The total cost of care includes health care expenditures incurred six months before and after the index date.
- The subgroup analysis includes utilization and costs analyses on emergency department, urgent care, physician office visits, and prescriptions.
- Some of the exclusion criteria within this analysis include but are not limited to, abdominal, acute, ophthalmic, allergic, basilar, drug-induced and confessional migraine, cluster headache, hemicrania, periodic headache syndromes, retinal migraine, stroke co-occurrent with migraine, short lasting unilateral neuralgiform headache with conjunctival injection & tearing, other trigeminal autonomic cephalgia, transformed migraine and cyclical vomiting.

Figure 1: Patient Selection Table



Charts and Tables

Table 1: Baseline Member Demographics

Migraine Members	% (N = 1,311)
Gender	
Male	10.6% (139)
Female	89.4% (1172)
Age	
18-<20	3.4% (45)
20-<30	15.3% (201)
30-<40	23.2% (304)
40-<50	27.0%(354)
50-<60	23.2% (305)
60+	7.8% (102)
Migraine Type	
Migraine without Aura	49.6% (650)
Chronic	46.8% (614)
Other	39.8% (522)
Migraine with Aura	27.5% (361)
Persistent	0.6% (8)

Figure 2: CGRP Prescription Cost and Market Share

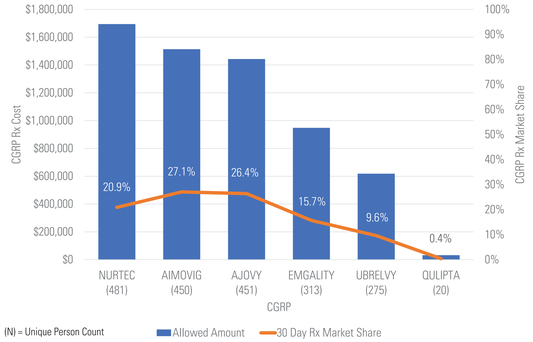


Figure 3: Total Cost of Care per CGRP Member per Month (N=1,311)

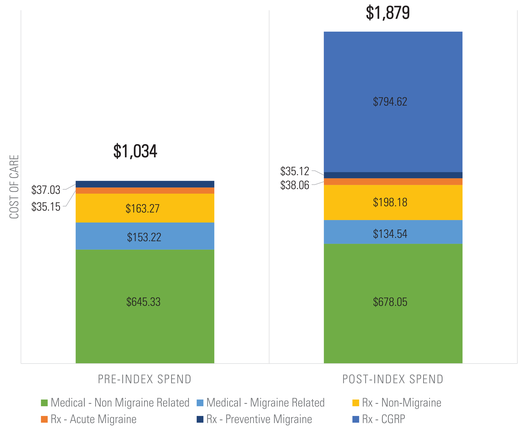


Figure 4: Total Cost of Care per CGRP Member per Month (Migraine Only) (N=1,311)

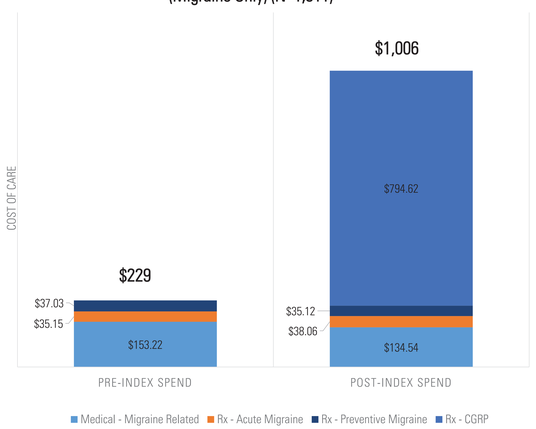


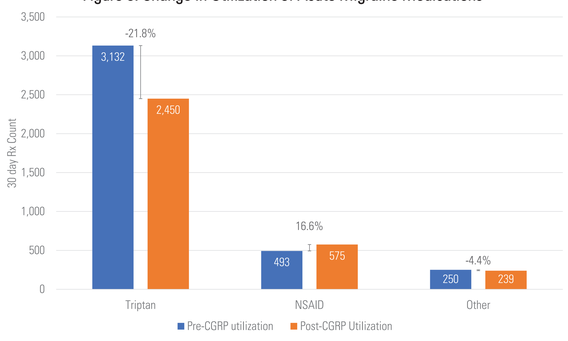
Table 2: Utilization and PMPM Changes to Prescription Drugs and Health Care Services for CGRP Members (N=1,311)

	Utilization Change	Utilization % Change	PMPM Change	PMPM % Change
Prescription Drugs	7,696	31.0%	$830.72	347.9%
Radiology	-73	-3.0%	-$5.23	-5.7%
Emergency Department	-115	-19.0%	-$7.79	-11.3%
Urgent Care Visits	23	5.1%	$0.57	10.7%
Physician Office Visits	-488	-6.9%	-$9.47	-8.3%

Pfizer contributed to this study in the form of data analysis.

Charts and Tables (cont.)

Figure 5: Change in Utilization of Acute Migraine Medications



Results

- A total of 1,311 members receiving CGRP therapy were included in the analysis. This represented 3.02% of the total migraine population (n= 43,367) The total cost of care increased 81.4% ($845) on a CGRP PMPM basis post CGRP usage.
- The total cost of care with the addition of CGRPs had an increased drug cost of approximately 348% ($831).
- Emergency department visits for patients prescribed CGRPs decreased by 11.3% (-$7.79), however urgent care visits increased approximately 11% ($0.57).
- Physician office visits decreased 8.3% (-$9.47).
- Diagnostic and imaging costs decreased approximately 6% (-$5.23). There were no differences in opioid utilization for the study period.

Conclusions

- After analyzing data from six months before and six months after the index date of the patient's first fill on July 1, 2020, to June 30, 2022, it was determined that, although overall prescription cost per member per month increased with CGRP usage, many health care service costs including emergency department visits, physician and radiology costs decreased.
- There was a significant increase in member migraine drug cost post CGRP use, as well as a significant increase in the total member cost.
- While direct costs increased, indirect costs were not included in the analysis. With large decreases in medical services, indirect costs may be substantial and should be quantified in future studies. Patient reported outcomes should also be considered for comparing CGRP and non-CGRP therapies in future studies.

References

1. Migraine: symptoms & causes. Mayo Clinic. July 2, 2021. Accessed May 18, 2023. https://www.mayoclinic.org/diseases-conditions/migraine-headache/symptoms-causes/syc-20360201
2. Edvinsson, Lars. "Role of CGRP in Migraine." Handbook of Experimental Pharmacology, vol. 255, 2019, pp. 121–130, pubmed.ncbi.nlm.nih.gov/30725283/, https://doi.org/10.1007/164_2018_201.
3. Goldberg, Laurence D. "The Cost of Migraine and Its Treatment." AJMC, MJ Life Sciences, 15 June 2005, www.ajmc.com/view/jun05-2069ps62-s67.
4. Varnado, Oralee J., et al. "Health Care Resource Utilization and Costs Associated with Treatment among Patients Initiating Calcitonin Gene-Related Peptide Inhibitors vs Other Preventive Migraine Treatments in the United States." Journal of Managed Care & Specialty Pharmacy, vol. 28, no. 8, 1 Aug. 2022, pp. 818–829, pubmed.ncbi.nlm.nih.gov/35876297/#:~:text=CONCLUSIONS%3A%20Although%20treatment%20with%20CGRP%20mAbs%20and%20GMB, https://doi.org/10.18553/jmcp.2022.28.8.818. Accessed 13 July 2023.