

2-2012

Association between TriptanUse and Cardiac Contraindications in an Insured Migraine Population

Daisy Ng-Mak, PhD

Global Health Outcomes, Merck Sharp & DohmeCorp., West Point, PA, USA

Valerie P. Pracilio, MPH


Jefferson School of Population Health

Stephen Silberstein, MD

Jefferson Headache Center

Joseph Couto, PharmD, MBA

Jefferson School of Population Health <https://jdc.jefferson.edu/hplectures>

 Part of the Health and Medical Administration Commons, Neurology Commons, and the Public Health Commons
Cary Sennett, MD, PhD
MedAssurant, Inc.

[Let us know how access to this document benefits you](#)

See next page for additional authors

Recommended Citation

Ng-Mak, PhD, Daisy; Pracilio, MPH, Valerie P.; Silberstein, MD, Stephen; Couto, PharmD, MBA, Joseph; Sennett, MD, PhD, Cary; Hopkins, RN, Mary; Bumbaugh, Jon; and Goldfarb, Neil I., "Association between TriptanUse and Cardiac Contraindications in an Insured Migraine Population" (2012). *College of Population Health Lectures, Presentations, Workshops*. Paper 23. <https://jdc.jefferson.edu/hplectures/23>

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in College of Population Health Lectures, Presentations, Workshops by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: JeffersonDigitalCommons@jefferson.edu.

Authors

Daisy Ng-Mak, PhD; Valerie P. Pracilio, MPH; Stephen Silberstein, MD; Joseph Couto, PharmD, MBA; Cary Sennett, MD, PhD; Mary Hopkins, RN; Jon Bumbaugh; and Neil I. Goldfarb

Association between Triptan Use and Cardiac Contraindications in an Insured Migraine Population



Daisy Ng-Mak, PhD¹, Valerie P. Pracilio, MPH², Stephen Silberstein, MD³, Joseph Couto, PharmD, MBA², Cary Sennett, MD, PhD⁴, Mary Hopkins, RN³, Jon Bumbaugh⁴, and Neil I. Goldfarb²

¹Global Health Outcomes, Merck Sharp & Dohme Corp., West Point, PA, USA

²Jefferson School of Population Health, Philadelphia, PA, USA

³Jefferson Headache Center, Philadelphia, PA, USA

⁴MedAssurant, Inc., Bowie, MD, USA



Background

- Safety concerns exist when using triptans to treat patients with cardiac contraindications.
 - Triptans cause vasoconstriction, a safety concern for migraineurs with cardiovascular (CV) disease or other cardiac risk factors.
 - All triptans contain contraindications in their package inserts to avoid use in patients with cardiac conditions.
 - Previous research indicates that clinicians are less likely to prescribe triptans in patients with CV disease or CV risk factors.¹
- Limited research has examined the proportion of migraine patients with cardiovascular disease or those individuals who were concurrently treated with triptans.^{1,2}

Migraine Quality of Care Measurement Set

- A set of measures were originally developed in 2007, by the Jefferson School of Population Health and the Jefferson Headache Center, with input from a national panel of advisors with clinical expertise in migraine.^{3,4}
- The Migraine Quality of Care Measurement Set was developed to examine utilization of services within a health plan to identify potential quality and safety concerns associated with care for the population identified with migraine.
- The measures and measurement specifications were updated in 2010 to align with current evidence.
- A pilot test of the 2010 measures was then conducted, using data from 10 health plans.
- The measurement set covers five areas of migraine diagnosis and treatment:
 - Establishment of Diagnosis
 - Utilization of Radiologic Services
 - Utilization of Physician Services
 - Utilization of Urgent and Emergent Services
 - Utilization of Migraine Medications
- The intent of the measures is to allow plans to examine their utilization over time, and in relation to national benchmarks.

Study Aims

- The aims of this study were:
 - To examine the prevalence of cardiovascular disease in the migraine population.
 - To assess the relationships between 5-HT_{1B,1D} receptor agonist (“triptan”) utilization and the presence of cardiac contraindications in the migraine population.

Methods: Study Population

- Ten representative commercial and/or Medicaid health plans in the MedAssurant Medical Outcomes Research for Effectiveness and Economics Registry (MORE² Registry™) were included in the study.
- The reporting year (the year of claims data on which measurement was based) was 2009.
- Only adult members between ages 18 and 64, with both medical and pharmacy benefits, were eligible for inclusion (N ≈ 2.5 million, across the 10 plans).
- The Migraine Population was identified through claims and pharmacy data as patients having at least one of the following criteria:
 - 1 or more claim(s)/encounter(s) for migraine, or
 - 2 or more “episodes” of headache reflected by multiple claims/encounters (“recurrent headache”) ≥7 days apart, or
 - 1 or more prescription(s) for a triptan or migraine analgesic
- Individuals with a diagnosis of subarachnoid hemorrhage, brain tumor, and/or intracranial bleed were excluded.

Triptans were identified through pharmacy claims based on at least one prescription for any 5-HT_{1B,1D} receptor agonist (triptan).

5-HT _{1B,1D} Receptor Agonists	
Sumatriptan	Frovatriptan
Sumatriptan / Naproxen	Eletriptan
Zolmitriptan	Sumatriptan (nasal)
Naratriptan	Zolmitriptan (nasal)
Rizatriptan	Sumatriptan (injection)
Almotriptan	

Cardiac contraindications were identified by condition using ICD-9 codes, visit codes and pharmacy claims.

Condition	Identification
Ischemic Cardiac Syndromes Angina Myocardial Infarction Myocardial Ischemia	ICD-9: 410.0 – 413.9 Medications: nitroglycerin, clopidogrel
Coronary Artery Disease (CAD)	ICD-9: 414.0-414.9
Peripheral Vascular Syndromes Ischemic Bowel Disease	ICD-9: 443.1-443.9, 557.9
Uncontrolled Hypertension	ICD-9: 402.0 – 405.99
Cerebrovascular Syndromes Stroke TIA Carotid vascular disease	ICD-9 430 – 437.2, 437.4 – 438.9 Medications: platelet aggregation inhibitors

Migraine Quality of Care Measurement Definitions

Measure	Numerator	Denominator
RX.2 Prescription for a Triptan	Dispensed at least one prescription for any 5-HT _{1B,1D} receptor agonist (triptan).	All patients in the Migraine Population.
RX.8 Prescription for a Triptan and Cardiac Contraindication(s)	A prescription for at least one drug associated with a cardiac contraindication OR with an outpatient, ED or urgent care center visit with a cardiac contraindication listed as a diagnosis.*	All patients in the Migraine Population with a prescription for a triptan during the measurement year.*

*Analysis conducted at the patient-level
*The numerator of RX.2 is the denominator for RX.8

Results

Migraine Quality of Care Measurement Set (RX.2 and RX.8) by Age Group

Measure	Mean*	Median*	Range*
RX.2 Prescription for a Triptan	37.7	36.5	22.2-44.9
18-49 years of age	36.8	36.3	23.3-43.7
50-64 years of age	40.0	37.7	13.7-47.1

Measure	Mean*	Median*	Range*
RX.8 Prescription for Triptan AND Cardiac Contraindication(s)	4.5	5.0	3.2-7.8
18-49 years of age	3.2	3.4	2.0-6.0
50-64 years of age	7.3	8.0	5.1-28.3

*Across all 10 health plans
KEY FINDINGS:
RX.2
• About 38% of the Migraine Population used at least one triptan
• 37% for 18-49 years of age
• 40% for 50-64 years of age
• Both age groups showed considerable variation between plans
RX.8
• About 5% of the Migraine Population using triptans had at least one cardiac contraindication
• 3% for 18-49 years of age
• 7% for 50-64 years of age
• Both age groups showed considerable variation between plans

Distribution of Triptan Prescriptions AND Cardiac Contraindications

	Triptan Prescriptions N (column percent), (row percent)		
	Triptan	No Triptan	
Cardiac Contraindication	2,067 (4.5)(22.0)	7,327 (9.7)(78.0)	9,394 (7.7)
No Cardiac Contraindication	43,710 (95.5)(39.1)	68,182 (60.9)(90.3)	111,892 (95.0)
	45,777 (37.7)	75,509 (62.3)	121,286

Distribution of Triptan Prescriptions AND Cardiac Contraindication(s) by Age Group

	Migraine Population ages 18-49 Triptan prescriptions N (column percent), (row percent)		
	Triptan	No Triptan	
Cardiac Contraindication	996 (3.2)(23.6)	3,233 (6.0)(76.4)	4,229 (5.0)
No Cardiac Contraindication	30,102 (96.8)(37.5)	50,265 (94.0)(62.5)	80,367 (95.0)
	31,098 (36.8)	53,498 (63.2)	84,596

	Migraine Population ages 50-64 Triptan prescriptions N (column percent), (row percent)		
	Triptan	No Triptan	
Cardiac Contraindication	1,071 (7.3)(20.7)	4,094 (18.6)(79.3)	5,165 (14.1)
No Cardiac Contraindication	13,608 (92.7)(43.2)	17,917 (81.4)(56.8)	31,525 (85.9)
	14,679 (40.0)	22,011 (60.0)	36,690

Key Findings

- 7.7% of the Migraine Population were identified as having a cardiac contraindication to a triptan.
- 37.7% of the Migraine Population had at least one triptan prescription filled during the measurement year (RX.2).
- 22.0% of the Migraine Population with a cardiac contraindication for triptans had at least one triptan prescription filled during the year.
- 4.5% of the Migraine Population having at least one triptan prescription filled during the year had a cardiac contraindication noted (RX.8). This rate ranged from 3.2% to 7.8% across the 10 plans.
- More than twice as many individuals in the 50-64 age group who were using triptans had cardiac contraindications compared to those aged 18-49.

Discussion

Triptans and Cardiac Contraindications

- Our data show that almost 8% of the Migraine Population had a cardiac contraindication as determined by at least one medical or pharmacy claim during the measurement year.
- Twenty-two percent of the Migraine Population identified as having a cardiac contraindication used a triptan during the measurement year. Highly varied rates of use between health plans is of particular interest.
- Our study demonstrates an unmet medical need for migraine patients who have cardiovascular disease/risks.

The Migraine Quality Measurement Set

- This examination of two measures included in the Migraine Quality Measurement Set demonstrates the potential value of the measures to identify pharmacy utilization trends.
- In addition to identifying a general concern about the widespread use of triptans in the at-risk population with cardiac contraindications, the pilot test demonstrates significant variation across health plans.
- The measures can be of value to health plans in identifying potential quality and safety issues and comparing their performance with national benchmarks.

References

- Bigal ME, Golden W, Buse D, et al. Triptan use as a function of cardiovascular risk. A population-based study. *Headache*. 2010;50:256-263.
- Young WB, Mannix L, Adelman JU, Shechter AL. Cardiac risk factors and the use of triptans: a survey study. *Headache*. 2000;40(7):587-591.
- Gagne JJ, Leas B, Lofland JH, Goldfarb N, Freitag F, Silberstein S. Quality of care measures for migraine: a comprehensive review. *Dis Manag*. 2007;10(3):138-146. 10.1089/dis.2007.103639.
- Leas BF, Gagne JJ, Goldfarb NI, Rupnow MF, Silberstein S. Assessing quality of care for migraineurs: a model health plan measurement set. *Popul Health Manag*. 2008;11(4):203-208. 10.1089/pop.2007.0020.

Acknowledgements

- This study was funded by Merck Sharp & Dohme Corp.
- The authors also want to acknowledge the intellectual capital contributed by the following advisors:

Roger Cady, MD
David Dodick, MD
Fred Freitag, DO

Christopher Goff, JD, MA
Richard Lipton, MD, FAAN
Walter “Buzz” Stewart, PhD