Patient initiation of fingolimod treatment at nome: cardiac monitoring and patient satisfaction from the Gilenya@Home **brogram**

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Introduction

Objective

Methods

Safety

- patient records.

Figure 1. Overview of the Gilenya@Home FDO procedure





^aVital signs can be recorded ^bSyncope, near syncope, loss of consciousness, nausea, emesis, chest pain or shortness of breath. ER, emergency room; QTc, corrected QT.



Fingolimod (Gilenya[®]) 0.5 mg/day is approved for relapsing forms of multiple sclerosis (MS);¹ more than 204 000 patients with MS have been treated with fingolimod. Asymptomatic, transient decreases in heart rate (HR) can occur at first dose of fingolimod, a pharmacodynamic effect arising from its interaction with sphingosine 1-phosphate receptors on atrial myocytes.²⁻⁴

Thus, fingolimod prescribing information requires first-dose observation (FDO) of patients for at least 6 hours, with monitoring of HR and blood pressure (BP).¹ Originally, fingolimod FDO was conducted only in medical facilities, but in October 2014 the Gilenya@Home program offered patients the convenience of starting treatment at home. Gilenya@Home is conducted by clinicians trained in fingolimod pharmacology, FDO procedure and cardiovascular life support.

To report cardiac safety data and to assess patient-reported satisfaction among patients who have completed their FDO as part of the Gilenya@Home program.

Gilenya@Home program overview

• Fingolimod initiation in the Gilenya@Home program is summarized in Figure 1. Before scheduling a Gilenya@Home visit, each patient undergoes baseline assessment, including electrocardiogram (EKG) recording, clinical laboratory measurements, and medical history review for any contraindications (Table 1).

Before fingolimod is administered during the Gilenya@Home visit, baseline assessment and cardiac history are reviewed, EKG recording is repeated, and the fundus and macula are examined.

FDO begins when fingolimod 0.5 mg is administered; HR and BP are recorded at baseline and at hourly intervals, and the patient is monitored for adverse events (AEs), including any that may be bradycardia-related.

Patients are encouraged to report all symptoms during FDO.

At 6 hours post-administration, EKG, HR and BP are recorded, and discharge evaluation is undertaken. Monitoring is extended until recovery if discharge criteria are not met.

For monitoring beyond 10 hours, or if new-onset second-degree (or higher) atrioventricular (AV) block occurs, patients are transferred to an emergency room for continuous, precautionary EKG monitoring overnight.

Retrospective safety data were collected anonymously from Gilenya@Home

Quorum Review Institutional Review Board exempted the analysis from ethical approval (Quorum Review, Seattle, WA, United States).

Table 1. Contraindications to fingolimod FDO in any setting and additional contraindications specific to the Gilenya@Home program

Fingolimod contraindicatio	ns in any setting					
Factors that contraindicate initiation of fingolimod in any setting	Patients who, in the of the following: myocardial infa unstable anging stroke transient ischer decompensate class III/IV heat Patients with a hit Mobitz type II and the stroke sick sinus synd 					
	Patients receiving					
Additional fingolimod contraindications spe						
Factors that contraindicate at-home fingolimod initiation, owing to the need for overnight EKG monitoring in a medical facility	Patients who tole serious heart rhy ischemic heart history of myo congestive hea history of card cerebrovascula uncontrolled h history of symp history of recu severe untreat AV block sinoatrial hear					

Patient satisfaction with the Gilenya@Home program

- A patient-satisfaction survey was administered to all patients at the end of FDO under the Gilenya@Home program. Patients were asked to return the survey by mail or by email.
- The survey comprised 13 questions, covering four main areas of patient satisfaction (Figure 2).
- Patients answered the survey using a five-point Likert scale, rating their experience as either 'very good', 'good', 'fair', 'poor' or 'very poor'.

Data analyses

• All safety, AE and survey satisfaction data are reported descriptively.

Baseline assessment before treatment initiation • Resting EKG is recorded	Eincolimod should not be initiated a		
 Stipulated fingolimod label precautions and contraindications are checked 	 has a prolonged QTc interval (me is at additional risk of QT prolong is concomitantly receiving drugs HR or AV conduction 		
Assessment at home, treatment initiation and the FDO pro			
 On the day fingolimod treatment initiation is scheduled, but before any drug is administered: 	 If assessments confirm that treatments of fingolimod is administered 		
 baseline assessment results are reviewed relevant cardiac history is confirmed 	 Vital signs (HR and BP) are recorded with monitoring for symptoms of brack 		
 an EKG is recorded, and if required, reviewed immediately (electronically) by a cardiologist 	 After 6 hours, an EKG is recorded, discharge evaluation is undertaken 		
 the fundus and macula are examined using a portable optical coherence tomography machine 			
Discharge criteria			
 Patients meet the discharge criteria and are discharged from FDO if: 	 If the criteria are not met at 10 hour 		
 they have been observed for ≥6 hours 	continuous EKG monitoring overnig		
 their HR is >45 bpm and has passed its nadir 	• The patient is also transferred to		
 they have no symptoms relating to a decreased HR 	recorded, or there is new onset s		
 If any of these criteria are not met, the at-home FDO procedure continues until recovery 	 The discharge process is complete and a 'Treating physician report' to 		

the preceding 6 months, have experienced any

- arction
- emic attack
- ed heart failure requiring hospitalization art failure
- istory or presence of the following: second- or third-degree AV block ndrome (unless the patient has a pacemaker) interval ≥500 ms
- ig class la or class III anti-arrhythmic drugs

ecific to the Gilenya@Home program

- erate bradycardia poorly or who may experience /thm disturbances, including the following:
- disease
- ocardial infarction
- eart failure
- diac arrest
- lar disease
- nypertension ptomatic bradycardia
- urrent syncope
- ated sleep apnea
- rt block

- at home if the patient:
- n, >450 ms; women, >470 ms)
- that can prolong QT interval or slow
- nent can be initiated, a single 0.5 mg dose
- led at baseline and hourly for 6 hours^a adycardia
- HR and BP are measured and a
- s, the patient is transferred to the ER for
- the ER if a prolonged QTc interval is second-degree (or higher) AV block
- ed by returning a 'Vital signs flow sheet' the patient's prescribing neurologist

Figure 2. Survey results for patient satisfaction with the Gilenya@Home program (N=1067)

Very good

Appointment scheduling

Ease of scheduling your appointment

- Courtesy of person who scheduled your appointment
- Ability to get your appointment when you wanted
 - Our helpfulness on the telephone

Physician and medical assistant Gilenya@Home team

- Friendliness/courtesy of the team
- Concern the team showed for your questions
- Your confidence in the Gilenya@Home team
 - Our helpfulness on the telephone

Personal satisfaction

- Team's sensitivity to your needs
- Team's concern for your privacy
- Our response to concerns/complaints made during our visit

Overall satisfaction

How well the Gilenya@Home team worked together to care for you Overall rating

Results

Cardiac safety

- Safety data were collected (October 2014 to April 2015) from 511 patients, including 354 women (69.3%).
- Most patients were monitored for only 6 hours; mean baseline HR, reduction in HR during FDO and extended monitoring data are shown in **Table 2**.
- In 25 patients monitored for up to 10 hours, the mean (SD) reduction in HR from baseline was 15.5 (8.9) bpm at 6 hours and 7.0 (11.6) bpm at 8 hours.
- No second-degree or complete AV block was observed.
- Mean maximum reduction in HR at 6 hours, the proportion of patients monitored for more than 6 hours and rates of symptomatic bradycardia were similar to values reported from the pooled phase 3 clinical trials of fingolimod 0.5 mg (**Table 2**).⁵

Adverse events

- 154 (30.1%) patients reported AEs; most frequent AEs were:
- dizziness, n=31 (6.1%; 4 with bradycardia)
- fatigue or somnolence, n=31 (6.1%)
- nervousness or anxiety, n=11 (2.2%)
- palpitations, n=3 (0.6%; none with bradycardia).

Table 2. Cardiovascular effects experienced by patients during Gilenya@Home FDO

Event	Gilenya@Home program (N=511)	Pooled phase 3 trials (fingolimod 0.5 mg)⁵ (N=1212)
HR		
Baseline sitting HR, mean (SD), bpm	73.7 (11.7)	73.0 (9.7)
Maximum reduction at 6 hours, mean (SD), bpm	9.4 (9.4)	8.1 (8.1)
Monitoring for more than 6 hours, ^a n (%)	61 (11.9)	157 (13.0)
Monitoring for up to 10 hours, ^b n (%)	25 (4.9)	NR
Symptomatic bradycardia, n (%)	4 (0.8)	7 (0.6)
AV conduction abnormalities		
First-degree AV block, n (%)	9 (1.8)	56 (4.7)
Second-degree or complete AV block, n (%)	0 (0)	2 (0.2) ^c

^aPatients are encouraged to report any symptoms experienced during Gilenya@Home, resulting in reported AE rates higher than those typically seen in clinical settings. Thus, precautionary extended monitoring can occur more often with Gilenva@Home than in medical facilities.

^bMonitoring was extended if a patient's HR had not reached nadir by 6 hours.

^cBoth events were Wenckebach (Mobitz type I) second-degree AV block. NR, not reported.

Proportion of respondents (%)									
0	20	40	60	80	100				

- Two patients (0.4%) were transferred to an emergency room for continuous EKG monitoring owing to symptomatic bradycardia (dizziness or lightheadedness): both received standard care until HR normalized
- both were released the next day and continued fingolimod treatment.

Patient satisfaction with the Gilenya@Home program

- Responses to satisfaction surveys were collected from October 2014 to May 2016. • Of 2951 patients completing FDO under Gilenya@Home, 1067 (36%) returned a completed survey.
- For all aspects of Gilenya@Home evaluated, at least 89% of patients rated satisfaction as 'very good' or 'good' (**Figure 2**).

Conclusions

- Based on patient survey responses, Gilenya@Home offers patients with relapsing forms of MS a convenient alternative to initiating fingolimod in a medical facility. Cardiac monitoring and safety data indicate that fingolimod initiation under
- Gilenya@Home is associated with a good safety profile.
- Most patients are eligible for Gilenya@Home and, based on responses to the patient survey, most have high levels of satisfaction with the program.

References

- . Novartis Pharmaceuticals Corporation. Prescribing information Gilenya[®]. 2016. Available from: https://www.pharma.us.novartis.com/product/pi/pdf/gilenya.pdf (Accessed February 28, 2017).
- . Brinkmann V et al. Pharmacol Ther. 2007:115:84-105.
- 3. Means CK et al. Cardiovasc Res. 2009;82:193-200
- 4. Camm J et al. Am Heart J. 2014;168:632-644. 5. DiMarco J et al. *Mult Scler Relat Disord.* 2014;3:629-638.

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Disclosures

John Osborne: Novartis Pharmaceutical Corporation (Medical Director of the Gilenya@Home program, speaker for Novartis professional and consumer programs). Jamie L Weiss, Xiangyi Meng and Brandon Brown: Novartis Pharmaceuticals Corporation (employees).

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