PDL DRUG REVIEW

Proprietary Name: Aimovig®
Common Name: erenumab-aooe
PDL Category: CGRP Inhibitors

Comparable Products	Preferred Drug List Status
Propranolol	Preferred
Topiramate	Preferred

Summary

Pharmacology/Usage: Erenumab-aooe, the active ingredient of Aimovig®, is a human immunoglobulin G2 (IgG2) monoclonal antibody that has high affinity binding to the calcitonin gene-related peptide (CGRP) receptor. It is produced using recombinant DNA technology in Chinese hamster ovary (CHO) cells. Erenumab-aooe binds to the CGRP receptor and antagonizes CGRP receptor function.

Indication: For the preventive treatment of migraine in adults.

There is no pregnancy category for this medication; however, the risk summary indicates that there are no adequate data on the developmental risk associated with use in pregnant women. The safety and efficacy of use in the pediatric population have not been established.

Dosage Form: Solution for Injection: 70mg/ml in a single-dose prefilled SureClick autoinjector and 70mg/ml in a single-dose prefilled syringe. Store refrigerated, and discard if left at room temperature for >7 days.

Recommended Dosage: Prior to use, allow to sit at room temperature for at least 30 minutes, but protected from direct sunlight. For subcutaneous injection only, to be administered in the abdomen, thigh, or upper arm subcutaneously. Inject 70mg SC once monthly. Some may benefit from a dose of 140mg injected SC once monthly, which is administered as two consecutive SC injections of 70mg each. Aimovig® is intended for self-administration after a healthcare provider trains the patient and/or caregiver on how to prepare and administer the injections.

Drug Interactions: There were no drug interactions listed with this product.

Common Adverse Drug Reactions: *Listed % incidence for adverse drug reactions= reported % incidence for drug (Aimovig®70mg) minus reported % incidence for placebo. Please note that an incidence of 0% means the incidence was the same as or that the active drug was less than placebo.* The most frequently reported adverse events included injection site reactions (3%), constipation (0%), and cramps/muscle spasms (0%). The most frequent injection site reactions were injection site pain, injection site erythema, and injection site pruritus.

Contraindications: There are no contraindications listed with this product.

Manufacturer: Amgen; Marketed by Amgen and Novartis

Analysis: The safety and efficacy of Aimovig® were assessed as a preventive treatment of episodic or chronic migraine in 3 randomized, double-blind, placebo-controlled studies. Studies 1 and 2 included patients with episodic migraine (4 to 14 migraine days per month) and study 3 included patients with chronic migraine (≥15 headache days per month with ≥8 migraine days per month). Study 1 and 2 excluded patients with medication overuse headache. Study 3 excluded patients with medication overuse headaches caused by opiate overuse and patients with concurrent use of migraine preventive treatments. In all studies, patients with MI, stroke, TIA, unstable angina, coronary artery bypass surgery, or other revascularization procedures within 12 months prior to screening were also excluded. Patients were allowed to use acute headache treatments, including migraine-specific medications (i.e. triptans, ergotamine derivatives) and NSAIDs during the studies.

Study 1 was a 6-month study that assessed Aimovig® for the preventive treatment of episodic migraine and included subjects with this diagnosis (N=955). Patients had a median age of 42 years (range 18 to 65 years). The primary endpoint was the change from baseline in mean monthly migraine days (MMD) over months 4 to 6. Results suggested that Aimovig® demonstrated statistically significant improvements for main efficacy endpoints as compared to placebo. Results can be observed in the table below, which was adapted from the prescribing information. (CHC Comments: The NNT for Aimovig® 70 mg and 140 mg are 6 and 5 relative to placebo with MMD Responders.)

Treatment	Aimovig® 70mg QM (N=312)	Aimovig® 140mg QM (N=318)	Placebo (N=316)
Monthly Migraine Days (MMD)			
Change from baseline	-3.2	-3.7	-1.8
Difference from placebo	-1.4	-1.9	
p-value	<0.001	<0.001	
≥50% MMD Responders			
% Responders	43.3%	50.0%	26.6%
Difference from placebo	16.7%	23.4%	
Odds Ratio relative to placebo	2.1	2.8	
p-value	<0.001	<0.001	
Monthly acute migraine-specific medication days			
Change from baseline	-1.1	-1.6	-0.2
Difference from placebo	-0.9	-1.4	
p-value	<0.001	<0.001	

The change from baseline in mean Migraine Physical Function Impact Diary (MPFID) over months 4 to 6 was also assessed. Compared to placebo, patients treated with Aimovig® 70mg and 140mg demonstrated greater reductions from baseline in mean monthly MPFID everyday activity scores averaged over months 4 to 6 (difference from placebo: -2.2 for Aimovig® 70mg and -2.6 for Aimovig® 140mg, p<0.001 for both), and in mean monthly MPFID physical impairment scores averaged over months 4 to 6 (difference from placebo: -1.9 for Aimovig® 70mg and -2.4 for Aimovig® 140mg, p<0.001 for both).

Study 2 was a 3-month study that assessed the efficacy of Aimovig® for the preventive treatment of episodic migraine in subjects with this diagnosis (N=577). Subjects had a median age of 43 years (range 18-65 years). The primary outcome was the change from baseline in monthly migraine days at month 3. Results suggested that Aimovig® demonstrated statistically significant improvements in key efficacy outcomes as compared with placebo. Results can be seen in the table below, which was adapted from the prescribing information.

Treatment	Aimovig® 70mg QM (N=282)	Placebo (N=288)
Monthly Migraine Days (MMD)		
Change from baseline	-2.9	-1.8
Difference from placebo	-1.0	
p-value	<0.001	
≥50% MMD Responders		
% Responders	39.7%	29.5%
Difference from placebo	10.2%	
Odds Ratio relative to placebo; (effect size as NNT)	1.6; (NNT =10)	
p-value	0.010	
Monthly acute migraine-specific medication days		
Change from baseline	-1.2	-0.6
Difference from placebo	-0.6	
p-value	0.002	

The prespecified analysis for the MPFID was based on at least a 5-point reduction within patient responder definition. Aimovig® 70mg QM was not significantly superior to placebo for the proportion of responders for everyday activity (difference from placebo: 4.7%, OR 1.2, p=0.26) and physical impairment (difference from placebo: 5.9%, OR 1.3; p=0.13). In an exploratory analysis of the change from baseline in the mean MPFID scores at month 3, patients treated with Aimovig® 70mg, as compared with placebo, demonstrated nominally greater reductions of physical impairment scores (difference from placebo: -1.3, p=0.021), but not of everyday activities scores (difference from placebo: -1.1, p=0.061).

Study 3 was a 3-month study that assessed the efficacy of Aimovig® as a preventive treatment of chronic migraine that included subjects with a history of chronic migraine, with or without aura (N=667). Subjects included had a median age of 43 years (range 18 to 66 years). The primary endpoint was the change from baseline in monthly migraine days at month 3. Results suggested that Aimovig® demonstrated statistically significant improvements for key efficacy outcomes as compared to placebo, which can be seen in the table below (adapted from the prescribing information).

Treatment	Aimovig® 70mg QM (N=188)	Aimovig® 140mg QM (N=187)	Placebo (N=281)
Monthly Migraine Days (MMD)			
Change from baseline	-6.6	-6.6	-4.2
Difference from placebo	-2.5	-2.5	
p-value	<0.001	<0.001	
≥50% MMD Responders			
% Responders	39.9%	41.2%	23.5%
Difference from placebo	16.4%	17.7%	
Odds Ratio relative to placebo (effect size as NNT)	2.2; (NNT=7)	2.3; (NNT=6)	
p-value	<0.001	<0.001	

Treatment	Aimovig® 70mg QM (N=188)	Aimovig® 140mg QM (N=187)	Placebo (N=281)
Monthly acute migraine-specific medication days			
Change from baseline	-3.5	-4.1	-1.6
Difference from placebo	-1.9	-2.6	
p-value	<0.001	<0.001	

Place in Therapy: Aimovig® is a subcutaneous injection indicated for the preventive treatment of migraine in adults. It is the first FDA-approved preventive treatment for migraine in a new class of drugs that antagonizes the activity of calcitonin gene-related peptide. Aimovig® was found to be associated with statistically significant improvements for key efficacy endpoints as compared with placebo, including monthly migraine days (MDD), MDD responders, and monthly acute migraine-specific medication days. Comparator studies with active ingredients were not found.

Aimovig® can provide modest improvements in outcomes for patients with chronic migraine and some patients with frequent episodic migraine. There are no direct comparisons to other drugs that have a longer track record of use for migraine prophylaxis. Given the lack of comparative and long-term efficacy and safety data and the high cost of the drug, Aimovig® should be non-preferred and be authorized only for patients with chronic migraine who are unable to tolerate or who have had inadequate response to other the preferred medications used for migraine prophylaxis.

PDL Placement: ☐ **Preferred**
☒ **Non-Preferred with Conditions**

References

[1] Aimovig [package insert]. Thousand Oaks, CA: Amgen AND East Hanover, NJ: Novartis; 2018.