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Specialty Pharmacy & Infusion Solutions

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# GUIDELINES FOR IN-HOME INTRAVENOUS Vyvgart (efgartigimod alfa-fcab) THERAPY

**Section:** Clinical Guidelines
**Compliance:** ACHC Infusion Pharmacy
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## I. BACKGROUND

Vyvgart (efgartigimod alfa-fcab) is a human IgG1 antibody fragment used for the treatment of generalized myasthenia gravis (gMG) in adult patients who are anti-acetylcholine receptor (AChR) antibody positive. Efgartigimod alfa-fcab binds to the neonatal Fc receptor (FcRn), resulting in the reduction of circulating IgG. Maintenance dosing is 10 mg/kg via intravenous (IV) infusion once weekly for 4 weeks.

The following outlines the procedures and protocol for coordination of servicing patients in need of outpatient efgartigimod alfa-fcab home infusions.

## II. PATIENT ACCEPTANCE CRITERIA

A. All candidates for home care service must be evaluated by the clinician(s) and deemed appropriate to receive home care based upon admission criteria.
B. The decision to administer a first dose in the home by an infusion nurse will be determined on a case-by-case basis and reviewed by nursing and pharmacy management. The following criteria will be evaluated:
    a. Prescriber preference
    b. Allergy profile
    c. Age ≥18 years
    d. Other relevant social and/or medical history
C. Physician orders for efgartigimod alfa-fcab must include:
    a. Drug and dose
    b. Route of administration
    c. Frequency of administration
    d. Length of observation period. (See Nursing Procedure section for post infusion monitoring observation periods)
    e. Emergency medications per protocol
    f. Orders for pre-medications, if applicable
    g. Line care protocol
    h. Routine lab monitoring, if applicable
D. Ensure patients are up to date on vaccinations.
    a. Because efgartigimod alfa-fcab causes transient reduction in IgG levels, immunization with

live-attenuated or live vaccines is not recommended during treatment with efgartigimod alfa-fcab. Evaluate the need to administer age appropriate immunizations according to immunization guidelines before initiation of a new treatment cycle with efgartigimod alfa-fcab

E. Baseline labs or tests prior to starting therapy
F. Dispensing pharmacy treatment protocol for anaphylaxis will be instituted unless a more comprehensive patient-specific orders are provided by physician. See policy NUR012 (Appendix A).

## III. PHARMACOLOGIC OVERVIEW

A. Indications: generalized myasthenia gravis (gMG) in adult patients who are anti-acetylcholine receptor (AChR) antibody positive.

**Subcutaneous dosing and administration will not be discussed in the scope of this guideline (if it is an IV drug that also has subq indications or maintenance dosing.*

B. Dosing: 10mg/kg IV once weekly for 4 weeks. In patients weighing 120 kg or more, the recommended dose is 1200 mg per infusion

**Dosing is based off actual body weight. Efgartigimod alfa-fcab has not been studied in extremes of body weights.*

C. Dose adjustment

1. No dose adjustment is needed for patients with mild renal impairment. There is insufficient data to evaluate the impact of moderate renal impairment (eGFR 30-59 mL/min/1.73 $m^2$) and severe renal impairment (eGFR <30 mL/min/1.73 $m^2$) on pharmacokinetic parameters of efgartigimod alfa-fcab.
2. No dose adjustments for hepatic impairment.
3. If a scheduled infusion is missed, efgartigimod alfa-fcab may be administered up to 3 days after the scheduled time point. Thereafter, resume the original dosing schedule until the treatment cycle is completed.

D. Duration

1. The typical duration of therapy is 4 weeks; however, it should be dependent on patient response and adverse reaction(s). No specific duration is noted in package insert. Administer subsequent treatment cycles based on clinical evaluation. The safety of initiating subsequent cycles sooner than 50 days from the start of the previous treatment cycle has not been established.

E. Contraindications: None

F. Warnings and Precautions
1. Infections- may increase the risk of infection. The most common infections observed in clinical trials were urinary tract infection and respiratory tract infections. A higher frequency of patients who received efgartigimod alfa-fcab compared to placebo were observed to have below normal levels for white blood cell counts, lymphocyte counts,

and neutrophil counts. The majority of infections and hematologic abnormalities were mild to moderate in severity.

2. Immunizations - Immunization with vaccines during treatment has not been studied. The safety of immunization with live or live-attenuated vaccines and the response to immunization with any vaccine are unknown. Due to the reduction in IgG levels, vaccination with live-attenuated or live vaccines is not recommended during treatment. Administer age-appropriate vaccines according to immunization guidelines before initiation of a new treatment cycle with efgartigimod alfa-fcab.
    a. COVID-19 vaccinations are strongly recommended for patients with myasthenia gravis per the Myasthenia Gravis Foundation of America. Patients with myasthenia gravis can be at higher risk of complications from COVID-19 infection. A multi-center study evaluated the safety and tolerability of the Pfizer and Moderna vaccines in patients with myasthenia gravis. The study supports the safety and tolerability of COVID vaccines in patients with myasthenia gravis.
3. Hypersensitivity reactions- rash, angioedema, and dyspnea were observed in efgartigimod alfa-fcab treated patients. In clinical trials, hypersensitivity reactions were mild or moderate, occurred within one hour to three weeks of administration, and did not lead to treatment discontinuation.

G. Pharmacokinetics:
1. Efgartigimod alfa-fcab exhibits linear pharmacokinetics, and following single doses of efgartigimod alfa-fcab, exposures increase proportionally up to 50 mg/kg (which is 5 times the recommended dosage of 10 mg/kg).
2. Distribution- The volume of distribution is 15 to 20L
3. Metabolism and elimination - Efgartigimod alfa-fcab is expected to be degraded by proteolytic enzymes into small peptides and amino acids. The terminal half-life is 80 to 120 hours (3 to 5 days). After a single intravenous dose of 10 mg/kg efgartigimod alfa-fcab in healthy subjects, less than 0.1% of the administered dose was recovered in urine

H. Adverse Reactions- Respiratory tract infections (33%), headache (32%), urinary tract infection (10%), paresthesia (7%), and myalgia (6%); immunogenicity (20%)

I. Drug Interactions- Concomitant use with medications that bind to the human neonatal Fc receptor (FcRn) (e.g., immunoglobulin products, monoclonal antibodies, or antibody derivatives containing the human Fc domain of the IgG subclass) may lower systemic exposures and reduce effectiveness of such medications. Closely monitor for reduced effectiveness of medications that bind to the human neonatal Fc receptor. When concomitant long-term use of such medications is essential for patient care, consider discontinuing efgartigimod alfa-fcab and using alternative therapies

## IV. ADMINISTRATIVE GUIDELINES

A. Site- Intravenous administration. IV infusion should begin within 1 hour of dilution. Do not infuse with other agents. **Use in-line 0.2micron low protein binding filter.**

B. The diluted solution can be administered using polyethylene (PE), polyvinyl chloride (PVC), ethylene vinyl acetate (EVA), or ethylene/polypropylene copolymer bags (polyolefins bags), and with PE, PVC, EVA, or polyurethane/polypropylene infusion lines.

## V. NURISNG PROCEDURE

A. Supplies may include but are not limited to:
1. Alcohol Swabs

2. Gloves
3. Dressing change kit
4. IV Pole
5. IV Start Kit
6. Peripheral IV catheter (22 gauge x1" and 24 gauge x ¾" )
7. Port access needle (22 Gauge x ¾ to 1" safe step)
8. Tape
9. Extension set 8"
10. IV injection cap
11. IV administration set with an in-line or add on 0.22-micron filter
12. Syringes (various sizes depending on dose) and Needles
13. Sharp container

B. Prescription Items
1. Vials of efgartigimod alfa-fcab (20mg/mL)
2. Bag of sodium chloride 0.9% for dilution (100 mL)
3. Bag of sodium chloride 0.9% for flushing (50 mL)

C. How supplied: efgartigimod alfa-fcab injection is a preservative free, sterile, colorless to slightly yellow, clear to slightly opalescent solution supplied as 400 mg/20 mL (20 mg/mL) in one single-dose vial per carton

D. Storage and handling: Store refrigerated at 2°C to 8°C (36°F to 46°F) in the original carton to protect from light until time of use. Do not freeze. Do not shake. Diluted product must be infused within 1 hour of preparation

E. Compatibility: Stable in 0.9% sodium chloride. No other diluents may be used to prepare efgartigimod alfa-fcab diluted solution.

F. Procedures:
1. Explain reasoning for visit and use of efgartigimod alfa-fcab

2. Don gloves

3. Establish venous access prior to preparing drug product

4. Counsel patient on warnings, precautions, and potential side effects including respiratory tract infections, headache, urinary tract infection, paresthesia, and myalgia.

5. Obtain vitals prior to starting infusion

6. Remove efgartigimod alfa-fcab vials from refrigerator and allow to stand to reach room temperature. Inspect efgartigimod alfa-fcab vials prior to preparation. Do not use if opaque particles, discoloration, or other foreign particles are present.

7. Prepare infusion:

a. Calculate the dose (mg), the total volume (mL) of efgartigimod alfa-fcab solution required, and the number of efgartigimod alfa-fcab vials needed based on the patient's actual body weight according to the following equation:

$$\text{Volume (mL)} = \frac{\text{patient's body weight (kg) x prescribed dose 10 mg/kg}}{\text{concentration of efgartigimod alfa-fcab 20 mg/mL}}$$

b. One vial is needed for every 20 mL of efgartigimod alfa-fcab which was determined from the calculation above.

c. Obtain a 100 mL 0.9% Sodium Chloride infusion bag/container - infusion bags/containers must be made of either polyethylene (PE), polyvinyl chloride (PVC), ethylene vinyl acetate (EVA), or ethylene/polypropylene copolymer bags (polyolefins bags).

d. Calculate the amount of diluent (0.9% sodium chloride) that will be required to add to the required volume of efgartigimod alfa-fcab solution to make a final volume of 125 mL. If applicable, remove excess volume of 0.9% Sodium Chloride Injection from the infusion bag/container prior to addition of the required volume of efgartigimod alfa-fcab solution.

Example: 70 kg patient requires a dose of 35 mL of efgartigimod alfa-fcab solution based on calculation above. In order to obtain a final volume of 125 mL, 10 mL must be withdrawn from the 100 mL 0.9% Sodium Chloride Injection infusion bag/container prior to adding the 35 mL of efgartigimod alfa-fcab solution.

e. Withdraw the necessary amount of efgartigimod alfa-fcab solution from vials and dilute by adding to the infusion bag/container containing 0.9% Sodium Chloride Injection.

f. Gently invert infusion bag to mix- Do not shake!

8. Infuse efgartigimod alfa-fcab over a total of 60 minutes (rate= 125mL/hr).

9. After administration of efgartigimod alfa-fcab, flush the entire line with 0.9% Sodium Chloride Injection

10. Monitor patients and vital signs periodically throughout infusion and for 1 hour post infusion

## VI. CLINICAL MONITORING

A. Prior to therapy:
   1. Assess if patient is up-to-date on vaccinations
   2. No current, active infections

B. During and after infusion
   1. Monitor for signs and symptoms of infections- During treatment with efgartigimod alfa-fcab monitor for clinical signs and symptoms of infections. Delay efgartigimod alfa-fcab administration in patients with an active infection until the infection is resolved. If serious infection occurs during treatment with efgartigimod alfa-fcab, administer appropriate treatment and consider withholding efgartigimod alfa-fcab until the infection has resolved

2. Monitor for signs and symptoms of hypersensitivity reactions- Monitor patients periodically during administration and for 1 hour thereafter for clinical signs and symptoms of hypersensitivity reactions including rash, angioedema, and dyspnea. If a hypersensitivity reaction occurs during administration, discontinue efgartigimod alfa-fcab infusion and institute appropriate supportive measures if needed. (Appendix A)

3. Immunogenicity- As with all monoclonal antibodies, there is a potential for immunogenicity. In clinical trials 17 out of 83 patients developed anti- efgartigimod alfa-fcab antibodies and 6 patients developed neutralizing antibodies. The available data is too limited to make definitive conclusions on immunogenicity. Patients should be monitored for disease progression and therapy efficacy. In addition, the ordering provider may order periodic labs to check for various antibodies.

4. Monitor disease progression and symptoms of muscle weakness and fatigue including: eyelid drooping, blurred or double vision, difficulty speaking, difficulty chewing or swallowing, choking, difficulty supporting the neck, shortness of breath/difficulty breathing, weakness in arms and legs, and difficulty walking/standing. There are various Myasthenia Gravis scales and questionnaires to measure disease severity and quality of life:

    a. MG-ADL (Myasthenia Gravis Activities of Daily Living): Patient reported outcomes including ability to brush hair and teeth, ability to rise from a chair, diplopia, ptosis, chewing, swallowing, speech problems, and shortness of breath/difficulty breathing. Each item is scored 0-3 with total score ranging from 0-24. The higher the score, the more severe the disease.
    b. QMG (Quantitative Myasthenia Gravis Score): Measures ptosis, diplopia, orbicularis oculi weakness, swallowing a cup of water, speech, percent predicted forced vital capacity, grip strength, arm endurance, leg endurance, and neck flexion endurance. Items are scored 0 to 3 with total scores between 0-39. Higher scores indicate disease severity.
    c. MGC (Myasthenia Gravis Composite): Measures comprehensive severity. This scale measures diplopia, ptosis, facial/neck/deltoid/hip flexor strength, chewing, swallowing, breathing, and speech. Total scores range from 0-50 and higher scores indicate disease severity.
    d. MG-QOL15r- (Myasthenia Gravis Quality of Life 15r)- Patient completed survey with 15 questions. Measures diplopia, eating, speech, mobility, in addition to social activity, hobbies, frustrations, personal independence, and depression. Scores range from 0-2. Total scores range from 0 to 30 and higher scores indicate worse quality of life.

**Please refer to the package insert for the most up to date guidance on this medication.**

## REFERENCES

Vyvgart [package insert]. Boston, MA: Argenx BV; 2021.

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## APPENDIX A: ANAPHYLAXIS KIT INTRUCTIONS

## Emergency Medication After Your Infusion

**Please call your pharmacy if you have any questions or concerns. In the event of an emergency, always call 911.**

**Your nurse will tell you when you need to use Emergency Medications.**
**The epinephrine dose will be noted on the Anaphylaxis Protocol included with your kit.**

Start with a clean work surface and clean hands.

**Open the supply bag labeled Anaphylaxis Kit Contents.**

**You will need:**

1. **Bag containing Pills** (2 Acetaminophen and 2 Diphenhydramine)
2. **Bag containing Alcohol Prep Pads**
3. **Bag labeled IM Epinephrine**

**All other contents will not be needed.**

**Open the IM Epinephrine Bag**

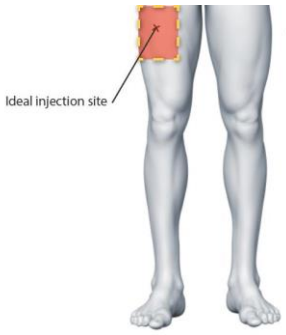
1. **Remove 1 of each item**
    a. 1 -syringe
    b. 1 – brown labeled filter needle (BD Filter Needle)- **for ampule use only**
    c. 1 – black labeled safety needle (Magellan Hypodermic Safety Needle 22G x 1”)
    d. 1 ampule of epinephrine

**Prepare IM (intramuscular) injection of Epinephrine:**

1. **Attach the brown filtered needle to syringe**
    a. Be careful to not touch the tip of the syringe or the needle.
2. Using an **alcohol swab, wipe the neck of the epinephrine ampule.**

3. Holding the ampule upright, **swirl and flick the ampule until all fluid flows to the bottom chamber** (the top chamber should be empty).
4. Using a new alcohol wipe, grasp the neck of the ampule and with your other hand grasp the bottom chamber of the ampule. **Quickly snap the top of the ampule off, directing the snap way from you.**
5. **Place the tip of the brown filter needle inside the ampule**. Tilting the ampule, **withdraw dose of medication into the syringe** by gently pulling back on the plunger. Be careful to not pull the plunger out of the syringe.
6. Remove the needle from the ampule and h**old the syringe upright** with the needle pointing upward. **Gently tap the side of the syringe to bring any air to the top of the syringe.**
7. **Push the air out of the syringe by gently pushing on the plunger**.
8. Replace the cap on the brown filter needle. Discard remainder in ampule.
9. **Remove the brown filter needle and place the black safety needle onto the syringe.**

Give your IM Epinephrine injection




1. **Grasp your leg muscle at the outer mid-thigh** and **cleanse the area** with a new alcohol wipe.
2. **Push the needle into your leg muscle straight** in at a 90-degree angle.
3. **Inject the medication** by depressing the plunger in a slow and steady motion.
4. **Remove the needle** and wipe the site with the alcohol wipe.
5. May repeat dose every 5 minutes (**maximum 3 doses**) if ordered per protocol.

**Take the pills by mouth.**

a. 2 – Acetaminophen
b. 2 – Diphenhydramine

**Place all trash in the bag the pills came in** and take with you when you seek medical care. **Give the bag to the nurse or EMT**, so your doctor will know what medication you already took. They will properly dispose of the syringe and needles.
**Call 911** or have someone drive you to the emergency department.