RANCHO LOS AMIGOS NATIONAL REHABILITATION CENTER

CARDIOLOGY SERVICES POLICY AND PROCEDURE

Subject: ULTRASOUND ENHANCING AGENT (UEA) **Policy No.:** 5

Supersedes:	January 17, 2018	Review Date:	April 25, 2024
Origin Date:	March 12, 2015	Revision Date:	

PURPOSE:
To outline the use of ultrasound enhancing agent (UEA), or contrast, in performing echocardiogram.

POLICY:
An echocardiogram is performed by a technician who has passed the Los Angeles County Department of Health Services echocardiography competency exam. This policy applies to adult echocardiogram that requires enhancement to optimize image quality.

DEFINITION:
An ultrasound enhancing agent (UEA), or contrast, is a solution of microbubbles that causes reflection of sound waves. The difference in the media densities between the cardiac structure and the microbubbles helps to enhance visualization of cardiac structure.

PROCEDURE:

Indications for UEA Usage:
Indications may include, but are not limited to the following:

- Transthoracic echocardiogram with suboptimal image quality, where two or more LV segments are not visualized adequately for the assessment of LV function and/or regional wall motion.
- Transthoracic echocardiogram when left ventricular thrombus is suspected.
- Stress echocardiogram to optimize endocardial border definition.

Contraindications:
UEAs should not be administered to patients with the following:

- For perflutren lipid microspheres (Definity), known or suspected hypersensitivity to perflutren or polyethylene glycol (PEG)
- For perflutren protein type A (Optison), known or suspected hypersensitivity to perflutren, blood, blood products, or albumin
- For sulfur hexafluoride lipid microsphere (Lumason), known or suspected hypersensitivity to PEG or to sulfur hexafluoride or to any of the inactive ingredients of the contrast agent
- Definity, Optison, and Lumason are not recommended for use at mechanical indices greater than 0.8 given the possible risk of triggering ventricular arrhythmias.

Comments:

- Pregnant or Nursing – UEA should be used during pregnancy only if clearly needed and the potential benefit justifies the potential risk to the fetus. Caution should be exercised when administered to a nursing woman, and nursing mothers should pump and discard breast milk once after treatment. There are no data on safety of UEA in pregnancy or lactation.
- For questions regarding the use of UEA, sonographer or nurse should consult cardiologist prior to use.

Protocol:

- Cardiopulmonary resuscitation personnel and equipment must be available in the vicinity prior to administration of UEA.
- The sonographer will need to communicate to the patient the reason for UEA. The patient may refuse the use of UEA.
- A 20 gauge IV access (or larger) is obtained.
- The sonographer or RN will wash their hands prior to preparing the UEA.
- For Definity the vial is to be placed in the Vialmix mechanical agitator to suspend the microspheres. For Optison, the vial should be gently rolled between the hands for 10-15 seconds until the vial is white appearing. Lumason, inject the 5mL of NaCl into the Lumason vial and shake vigorously for at least 20 seconds.
- Insert one 16 gauge needle into the vial of UEA to vent (if applicable according to manufacturer guidelines)
- Open one of the 10 cc syringes and waste 2 cc of saline solution. Attach a 16 gauge needle to the syringe.
- Wipe the top of the UEA vial with an alcohol prep pad and draw up the full vial.
- Gently rotate and invert the UEA solution to re-suspend the microspheres.
- Use the alcohol prep pad to scrub the hub of the IV access.
- Attach the syringe containing the UEA to the IV hub. Slowly push approximately 2-3 cc of the UEA at a rate of approximately 1 cc per 20-30 seconds. Dose to be determined based on image quality needs.
- The sonographer will acquire appropriate images. Repeat contrast administration as needed.
- No monitoring is necessary after completion of study unless an adverse reaction is observed.

Adverse events:

- Adverse reactions to UEA are extremely rate. Adverse reactions can include back pain, seizures, urticaria, angioedema, or anaphylaxis.
- Mild adverse reactions can be managed by stopping the injection and monitoring the patient’s vitals for 30 minutes.
- Severe adverse reactions should be managed by activating code response per hospital policies.