Magnesium sulfate is an unclassified drug that has been shown to be safe to decrease vagal tone and increase the heart rate. Cardioversion is usually done as an elective procedure to treat supraventricular tachycardia, atrial fibrillation, atrial flutter, or hemodynamically stable ventricular tachycardia.

**Countershock**

*Countershock* is used to interrupt cardiac rhythms that compromise cardiac output and the client’s welfare. Delivery of a direct current charge depolarizes all cardiac cells at the same time. This simultaneous depolarization may stop a tachydysrhythmia and allow the sinus node to recover control of impulse formation. There are two types of countershock: synchronized cardioversion and defibrillation.

**SYNCHRONIZED CARDIOVERSION**

*Synchronized cardioversion* delivers direct electrical current synchronized with the client’s heart rhythm. Synchronization of the shock with the QRS complex prevents ventricular fibrillation by avoiding current delivery during the vulnerable period of repolarization.

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**PROCEDURE 31–2 ELECTIVE SYNCHRONIZED CARDIOVERSION**

**GATHER SUPPLIES**

- Cardioverter-defibrillator with ECG cable and monitor
- Conductive gel pads or paste
- Dry gauze pads
- Emergency drug kit and resuscitation equipment
- IV supplies (catheter, solution, administration set)

**BEFORE THE PROCEDURE**

Explain the purpose of the procedure (to restore an effective cardiac rhythm). Describe the procedure in simple, nontreating terms. Advise that some discomfort may be felt with each countershock, but a sedative will be given to minimize discomfort. Witness the signature on an informed consent form for this procedure. Document preprocedure rhythm on an ECG strip. Ensure a patent intravenous access site for emergency drug administration. Keep NPO as specified prior to the procedure. Assess acid-base and electrolyte levels (especially potassium, magnesium, and calcium) and drug levels if appropriate. Document vital signs, level of consciousness, and peripheral pulses. Report abnormalities to the physician prior to the procedure. Document vital signs, level of consciousness, and peripheral pulses. Advertise the prescribed sedative, and provide for safety. Remove any medication patches from the chest and all metallic objects. Place in supine position, and provide for privacy.

**PROCEDURE**

1. Use standard precautions.
2. Turn on the cardioverter-defibrillator and ECG monitor.
3. Connect the client’s ECG cable to the cardioverter. Select a lead with prominent R waves for monitoring.
4. Set cardioverter to “synchronize” mode. Observe the ECG waveform on the monitor for indications of synchronization, such as a flashing bold line or a blip. Many units also display the message “synchronized mode” on the monitor.
5. Place conductive pads on the chest below the right clavicle to the right of the sternum and in the midaxillary line on the left. If using conductive paste, spread it evenly on the defibrillator paddles.
6. Turn on the ECG recording strip for a continuous printout during the procedure.
7. Charge the paddles to the prescribed energy dose. The machine will beep to indicate that the selected energy level has been reached and that the paddles are ready for discharge.
8. The paddles are applied firmly to the chest over the conductive pads by the physician.
9. Turn oxygen off and remove it.
10. Ensure that no one is touching the client or the bed prior to discharge of the electrical shock. There may be a slight delay in shock delivery as the machine synchronizes with the R wave.
11. Assess client status and ECG rhythm. Assure a patent airway and the presence of a pulse.
12. The procedure may be repeated if unsuccessful. The energy level may be increased with each attempt.
13. Remove conductive pads. Using a dry gauze pad, clean paste from the chest and the paddles.

**AFTER THE PROCEDURE**