SUMMARY

Electromagnetic Interference (EMI) is the disruption of normal operation of an electronic device when it is in the vicinity of an electromagnetic field created by another electronic device.

Electric arc welding refers to a process that uses a power supply to create an electric arc between two metals.

This article describes the potential interaction between the arc welder and Boston Scientific implantable pacemakers and defibrillators. It also provides suggestions to minimize potential interactions.

Products Referenced
All CRM ICDs, CRT-Ds, CRT-Ps, and Pacing Systems

Products referenced herein may not be approved in all geographies. For comprehensive information on device operation and indications for use, reference the appropriate product labeling.

CRT-D: Cardiac Resynchronization Therapy Defibrillator
CRT-P: Cardiac Resynchronization Therapy Pacemaker
ICD: Implantable Cardioverter Defibrillator

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Arc Welding and Implanted Medical Devices

Description

The electrical signals generated by arc welders may interfere with the proper function of ICDs, CRT-Ds, CRT-Ps or pacing systems. This interference may have the potential to be interpreted by the device as electrical noise or as electrical activity of the heart. Such interference may result in temporary asynchronous pacing (loss of coordination between the heart and the device), inhibition of pacing and/or shock therapy (therapy not delivered when required), or inappropriate tachyarrhythmia therapy (therapy delivered when not required).

Potential EMI interactions

Electromagnetic interference (EMI) may occur when electromagnetic waves from one electronic device interfere with the operation of another electronic device. Electromagnetic waves of sufficient amplitude, pulse width, and/or frequency, generated within the proximity of an implanted pacemaker or defibrillator may result in unnecessary shock therapy or inhibition of pacing therapy when needed.

Arc Welding considerations

Should arc welding be used, Boston Scientific recommends that patients maintain a distance of 24 inches (60 centimeters) between their implanted device and the arc welding equipment (i.e., the power supply, cabling, and the arc). If symptoms of faintness, dizziness, nausea, shocks etc. are felt, stop immediately and step away from the area or turn off the equipment. The risk of interference is minimized by using the lowest current setting possible.

Other arc welding considerations include, but are not limited to:

- Strictly follow the safety precautions mentioned in the welder manual.
- Work in a dry area. Wear dry, electrically insulated gloves.
- Keep all cables straight, close together, and extending away from the body. Do not coil cables.
- Arrange the work area so that the handle and rod will not contact the metal being welded.
- Use short, intermittent, and irregular bursts at the lowest feasible energy levels; wait several seconds between welds. Do not weld with rapidly repeating short bursts, as they are more likely to be interpreted as electrical activity of the heart.
- Ensure all equipment is properly grounded and is in proper working condition.