Great Lakes Heart & Vascular Institute, P.C.
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Welding & Chain Saws

Why should I avoid welding and chain saws?

Unlike most other household power tools, welders and chain saws are two tools that may have a higher tendency to temporarily affect the normal function of your pacemaker or implantable cardioverter defibrillator (ICD).

Chain Saws:

The spark discharge of the ignition system of a gasoline-powered chainsaw produces electromagnetic (EM) energy that may affect your pacemaker or ICD. Effects may be caused by current inadvertently conducted into your body (leakage current), or by the EM field. You may not feel the leakage current passing from one hand to the other through your body, but it may still interfere with the operation of your pacemaker or ICD. Gas chain saws that have the spark plug located near the handgrips pose a greater risk of conduction leakage current.

Your pacemaker could continuously pace your heart if it were to detect either leakage current or the radiated EM field. This will result in an irregular heart rate if your heart were beating on its own. Your ICD could deliver a shock if it detects either leakage current or the radiated EM field.

Some pacemakers and ICDs can be programmed to the rate-responsive mode. These types of devices have special sensors that detect changes in activity and increase or decrease your pacing rate accordingly. Rate responsive devices may sense vibrations generated by both electric and gas-powered chain saws, increasing your pacing rate. These devices, however, are designed with a limit on how fast they will pace.

Most importantly, if you become lightheaded or dizzy and lose control of an electric or gas-powered chain saw, it could result in injury.

Welding:

Because of the random nature of the EM energy generated during welding (including AC arc, DC arc, MIG, RIG, plasma) it is difficult to predict the affect on your pacemaker or ICD.

The EM energy generated from a welding arc can cause your pacemaker to continuously pace the heart. If your heart is beating on its own, this will result in an irregular heart rate.

The intense EM energy generated when spot welding or starting a bead may cause your pacemaker (including the pacemaker function of an ICD) to pause temporarily if it were pacing your heart.

Your ICD could detect the EM energy from the welder (especially when spot-welding) as a fast heart rhythm, causing it to deliver a shock.

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Will welding or using a chain saw damage my pacemaker or ICD in any way?

No, use of these tools will not cause any permanent damage or re-programming to your pacemaker or ICD. Any potential effects will end when the welding is stopped or when the chainsaw is turned off.

If I need to use a chainsaw or welder what can I do to reduce the risk of interaction?

While it is recommended you avoid welding and the use of chainsaws, we understand some individuals have used these tools. It is our hope that any decision you make to use these tools is made in consultation with your doctor. Your physician can advise you as to the degree of risk these responses pose for your medical condition. Aprons or vests will not effectively shield your pacemaker or ICD from the EM energy generated by these two types of tools.

Chain Saws:

1. The motor of an electric chainsaw poses less risk of affecting your pacemaker or ICD than the ignition system of a gas powered chain saw.
2. If using a gas powered chain saw, it is better to use one that is built with the spark plug located away from the handgrips.
3. Immediately stop cutting and turn off your chainsaw if you start feeling light-headed, dizzy, or you believe your ICD has delivered a shock.

Welding:

1. Limit welding current to a 60 to 130 ampere range.
2. Work in a dry area with dry gloves and shoes.
3. Keep the welding cables close together and as far away as possible from your pacemaker or ICD. Place the welding unit away from the work area.
4. Connect the ground clamp to the metal as close to the point of welding as possible. Arrange the work so the handle and rod will not contact the metal being welded if they are accidentally dropped.
5. Wait several seconds between attempts when having difficulty starting a weld.
6. Work in an area that offers firm footing and plenty of room for movement.
7. Work with an informed person who understands these suggestions.
8. Immediately stop welding and step away from the area if you start feeling light-headed, dizzy, or you believe your ICD has delivered a shock.