



InfoSheet

MANAGING INJECTION SITE REACTIONS ASSOCIATED TO TREATMENT

Novel therapies used to treat multiple myeloma, and other associated conditions can be injected in one of three ways; subcutaneously (directly under the skin), intramuscularly (into the muscle tissue) or intravenously (directly into the veins). These administration methods, however, may result in the occurrence of injection site reactions.

These reactions can vary in severity and type depending on factors such as the route of administration, the medication being used, and the individual patient's sensitivity.

This InfoSheet will give you more information about injection site reactions – including how they can affect your body. It will also cover how to recognize its signs and symptoms, as well as ways to better manage this side effect.

Definition and causes of injection site reactions

Localized injection site reactions are responses that may occur at or near the injection site. These reactions can arise from subcutaneous, intramuscular, or intravenous medication administration. Any medication, including vaccinations, have the potential to cause a local injection site reaction.

Localized injection site reactions typically range from mild and transient symptoms to more severe complications, though they are usually mild and resolve quickly. Common symptoms include redness (erythema), swelling, pain, tenderness, itching, bruising, and, in rare cases, infection or abscess formation. These reactions are often caused by the mechanical insertion of the needle, the properties of the medication (e.g., irritants), or an inflammatory or allergic response¹.

Intravenous (IV) therapy is widely used to deliver fluids, nutrients, and medications directly into a patient's bloodstream. While highly effective, IV therapy carries risks, including two common complications: IV infiltration and IV extravasation.

Infiltration occurs during the intravenous administration of a medication. It is an adverse reaction when a non-irritating medication escapes from the veins or intravenous catheter and the medication gets into the surrounding tissues. These drugs do not cause blisters or tissue necrosis. Common symptoms include pain, swelling, coolness, tight skin, or skin appearing pale around the IV site. These reactions cause minimal tissue damage and like localized injection site reactions are typically mild and short-term.

Extravasation is an adverse reaction when an irritating medication escapes from the veins or intravenous catheter and gets into the surrounding tissues. These are more serious, as these medications can cause tissue damage, which can lead to necrosis, or tissue death. The common symptoms include severe pain, swelling, redness, skin discoloration, blistering, and a feeling of heat near the IV site².

² Lee, S. Side effects of chemotherapy. Canadian Cancer Society, 2016. <https://cancer.ca/fr/treatments/treatment-types/chemotherapy/side-effects-of-chemotherapy>

How are injection site reactions treated?

It is important not to try to treat injection site reactions caused by intravenous administration yourself, unless instructed by your healthcare provider.

Both infiltration and extravasation are treated by immediately stopping the treatment and cleaning the area around the IV site to prevent any further damage. Next steps will depend on the medication that was being administered.

¹ Cole, B. Injection-Site Reactions and How to Manage Them. Pharmacy Times, 2019. <https://www.pharmacytimes.com/view/injection-site-reactions-and-how-to-manage-them>

Localized injection site reactions are easier to treat and can be treated by:

- Applying a cold compress to decrease pain and swelling
- Gentle massage of the injection site to encourage blood flow
- Using oral analgesics for pain or oral antihistamines for itch (consult your healthcare provider for advice on the most appropriate medication for you)
- Warm compresses to help soothe your muscle if it is irritated
- Moving the affected body part regularly to increase blood flow and promote faster healing
- Avoid using scented products on the location

Tips for self-management and prevention

There are a few things you and your healthcare team can do to reduce your risk of injection site reactions, such as:

- Prior to your treatment appointment, make sure you are well hydrated.
- Your treatment administration nurse will select the appropriate needle size and injection site to minimize the risk of reaction. They will consider the type of treatment you are receiving and assess the veins in your arms to find one that is large, straight, and any free from bruises, cuts, or other recent injection sites.
- For subcutaneous and intramuscular injections, it is especially important to rotate the injection site to prevent the formation of lumps and ensure the body absorbs the medication equally each time. This means rotating injection sites to give treatment. For subcutaneous injections, this might mean using a different side of the abdomen, the upper arms, or the outer thighs. For intramuscular injections, rotation might involve alternating between the upper arms and outer thighs.
- Your treatment administration nurse will also help select the best site for each administration. Depending on quality of veins and frequency of treatment administration, central venous access device (CVAD) can be useful, notably PICCs/Ports/Hickmans.

Precautionary measures

During or after your intravenous treatment, if you notice any pain, redness, blistering, or itching around or nearby the injection site, alert your nurse or healthcare provider right away.

When to seek immediate medical attention

While many injection site reactions are mild, certain symptoms may indicate serious complications that require urgent care:

- Rapid swelling, tightness, or discoloration near the injection or IV site.
- Fever, chills, or other signs of infection.
- Severe pain or blistering that worsens over time.

If experiencing difficulty breathing, swelling of the face or throat, widespread hives, or other symptoms of anaphylaxis, you should call 911 and proceed to the nearest Emergency Department.

Use Myeloma Canada's **Myeloma Monitor** to help you store, organize, and track your symptoms. Access the Myeloma Monitor App [here](#).

To learn more about injection site reactions, consult Myeloma Canada's "**Myeloma Immunotherapy**" InfoGuide in the Resource library at www.myeloma.ca.

Your healthcare team, pharmacist, and nutritionist are also there to support you. It's important to share your symptoms with them.

Myeloma Canada wishes to acknowledge and thank Aaryn Tays, nurse at Queen Elizabeth II Health Sciences Centre in Halifax (NS), as well as Stephanie Valkenier, Community Pharmacist and PharmD Candidate, for their contribution. The information disclosed in this InfoSheet is based on existing Myeloma Canada publications reviewed by healthcare professionals and other publications from our sister myeloma organizations: the International Myeloma Foundation (IMF) and Myeloma UK. This information is not meant to replace the advice of a medical professional; they are the best people to ask if you have questions about your specific medical/social situation.