

## Immunotherapy for Female Reproductive Cancer

### Treating Gynecologic Cancer

Gynecologic cancer is cancer that affects certain parts of the female reproductive system, such as the ovaries, endometrium, or cervix. And while these cancers start here, it's important to know that sometimes cancer cells can break away and spread (metastasize) to other parts of the body.

There are several treatment options available for gynecologic cancer, including surgery, radiation therapy, chemotherapy (or "chemo"), medicines, and joining a clinical trial. No one treatment is best for everyone, so you and your doctor will make a treatment plan together that fits your individual needs.

If your doctor recommends surgery, the 2 main goals will be to remove all, or as much, of the cancer as possible, and to check if the cancer has spread. Chemotherapy may also be recommended, before or after surgery. Medicines that may be recommended can include targeted therapy, hormone therapy, or immunotherapy.

### Immunotherapy to Treat Gynecologic Cancer

Your immune system -- your body's natural defense system -- is made up of different organs, cells, and proteins that work together to help protect you. Immunotherapy boosts the activity of your immune system to help improve your body's ability to find and kill cancer cells.

One important part of your immune system are special white blood cells called T cells. T cells help defend you by attacking invaders like bacteria, viruses, and cancer cells. T cells do this by using a protein on their surface called PD-1. Cancer cells have a protein on their surface called PD-L1. When PD-1 and PD-L1 meet, it's called an immune checkpoint. This checkpoint keeps the T cell from doing its job of attacking the cancer cell.

Some types of immunotherapy are called checkpoint inhibitors. Certain ones (PD-1 inhibitors) work by inhibiting, or blocking, the PD-1 protein on T cells. As a result, PD-1 and PD-L1 can't meet and the immune checkpoint doesn't happen. This lets your T cells do their job and attack the cancer cells. PD-1 inhibitors for gynecologic cancer include pembrolizumab (Keytruda<sup>®</sup>) and nivolumab (Opdivo<sup>®</sup>).



## Possible Side Effects

Some of the most common side effects that can happen with checkpoint inhibitors for gynecologic cancer include:

- Diarrhea, nausea, vomiting, and belly pain
- Fatigue (tiredness)
- Skin rashes and itchiness
- Headaches, dizziness
- Kidney problems, including infections
- Inflammation of the lungs (pneumonitis), cough, shortness of breath, or chest pain
- Changes in hormone levels

Checkpoint inhibitors for gynecologic cancer are given by infusion into a vein (IV). In certain cases, some people may have a reaction to the IV infusion that may be severe or even life-threatening.

Symptoms of an IV infusion reaction may include:

- Chills or shaking
- Dizziness
- Feeling like passing out
- Shortness of breath or wheezing
- Itching or rash
- Flushing (feeling warm with a red neck, upper chest, or face)
- Fever
- Back pain

Before you start treatment, ask your doctor about any side effects that may happen. Some side effects can go away on their own, but others may last longer. Your doctor may also recommend you take certain other medicines before, during, or after treatment to help with side effects.

All immunotherapy can have side effects, and not all are listed here. Ask your doctor for a complete list and when you should call your doctor or go to the emergency room because of side effects.

## Questions to Ask Your Doctor



Questions you can ask your doctor about gynecologic cancer and immunotherapy can include::

- What treatments are available, and what are their side effects?
- What is the best way to manage side effects?
- How will I know if treatment is working?
- Are there any lifestyle changes I should make?
- How can I make sure I have the best quality of life possible?