

**CHEMOTHERAPY****Wagh Pratiksha Himmat\* and Dhormare Aashutosh Ajinath**

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**ABSTRACT**

Chemotherapy is a drug treatment that uses powerful chemicals to kill fast-growing cells in your body. Chemotherapy is most often used to treat cancer, since cancer cells grow and multiply much more quickly than most cells in the body. Many different chemotherapy drugs are available. chemotherapy can work throughout your body. But it can also affect some fast-growing healthy cells, like those of the skin, hair, intestines, and bone marrow.

**KEYWORDS:** Chemotherapy, tumor, cancer, chemical drug, surgery, effects, Treatment.

**INTRODUCTION**

Chemotherapy is one of the most common treatments for cancer. It uses certain drugs to kill cancer cells or to stop them from growing and spreading to other parts of your body. Your doctor might prescribe chemo by itself or with surgery or radiation therapy. You might also take newer kinds of cancer-fighting drugs along with chemotherapy.

**What Is Chemotherapy?**

- Is an aggressive form of chemical drug therapy meant to destroy rapidly growing cells in the body. It's usually used to treat cancer, as cancer cells.<sup>[1]</sup> grow and divide faster than other cells. A doctor who specializes in cancer treatment is known as an oncologist.<sup>[2]</sup> They'll work with you to come up with your treatment plan.

Chemotherapy is often used in combination with other therapies, such as surgery, radiation, or hormone therapy.

**This depends on**

1. The stage and type of cancer you have
2. your overall health
3. previous cancer treatments you've had
4. the location of the cancer cells
5. your personal treatment preferences

**Why you need chemotherapy:** Even after surgery to remove a tumor, your body might still have cancer cells. These cells can grow new tumors or spread the cancer to other parts of your body. Chemotherapy drugs help destroy, shrink, or control those cells. It might also treat symptoms the cancer causes, like pain. You might also get chemo to shrink a tumor before your doctor removes it in surgery.

**Why chemotherapy is used****Chemotherapy is primarily used to**

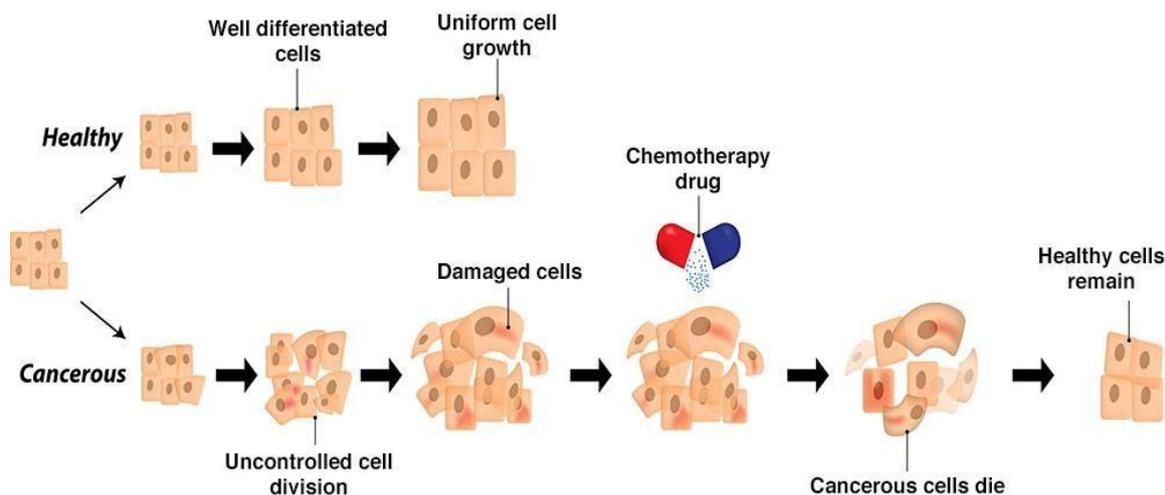
1. lower the total number of cancer cells in your body
2. reduce the likelihood of cancer spreading
3. shrink tumor<sup>[3]</sup> size
4. reduce current symptoms

**Chemotherapy may be used to**

1. Shrink a tumor before radiation therapy or surgery called neoadjuvant<sup>[4]</sup> chemotherapy
2. Destroy any remaining cancer cells after surgery or radiation therapy called adjuvant<sup>[5]</sup> chemotherapy
3. Make other therapies (biological or radiation) more effective
4. Destroy cancer cells that return or spread to other parts of your body

**How does chemotherapy work?**

Chemotherapy works by stopping or slowing the growth of cancer cells, which grow and divide quickly. It can also harm healthy cells that divide quickly, such as those that line your mouth and intestines or cause your hair to grow. It targets cells that grow and divide quickly, as cancer cells do. Unlike radiation or surgery, which target specific areas, chemo can work throughout your body. But it can also affect some fast-growing healthy cells, like those of the skin, hair, intestines, and bone marrow. That's what causes some of the side effects from the treatment.



**Figure no. 1: How chemotherapy work.**

### What does chemotherapy do?

Depending on your type of cancer and how advanced it is, chemotherapy can:

1. Cure cancer - when chemotherapy destroys cancer cells to the point that your doctor can no longer detect them in your body and they will not grow back.
2. Control cancer - when chemotherapy keeps cancer from spreading, slows its growth, or destroys cancer cells that have spread to other parts of your body.
3. Ease cancer symptoms (also called palliative care<sup>[6]</sup>) - when chemotherapy shrinks tumors that are causing pain or pressure.

### How is chemotherapy given?

1. **Injection:** The drugs are delivered with a shot directly into muscle in your hip, thigh, or arm, or in the fatty part of your arm, leg, or stomach, just beneath the skin.
2. **intra-arterial (IA):** The drugs go directly into the artery that is feeding the cancer, through a needle, or soft, thin tube (catheter).
3. **Intraperitoneal (IP):** The drugs are delivered to the peritoneal cavity, which contains organs such as your liver, intestines, stomach, and ovaries. It is done during surgery or through a tube with a special port that is put in by your doctor.
4. **Intrathecal (IT) chemotherapy<sup>[7]</sup>:** Medicine is injected into the cerebrospinal fluid (CSF), which is found in the area surrounding the spinal cord and the brain.
5. **Intravenous (IV):** The chemotherapy goes directly into a vein.
6. **Topical:** You rub the drugs in a cream form onto your skin.
7. **Oral:** You swallow a pill or liquid that has the drugs

**How long does chemotherapy last?****That depends on**

1. The type of cancer you have How far along it is
2. The goal of treatment: cure, control growth, or ease pain
3. The type of chemotherapy
4. The way your body responds to the treatment

**Common chemotherapy drugs**

There are dozens of chemotherapy drugs that doctors can prescribe. They're often divided into groups based on how they work and what they're made of. Each group of drugs destroys or shrinks cancer cells in a different way.

1. Some drugs damage the DNA of cancer cells to keep them from making more copies of themselves.

**Alkylating agents<sup>[8]</sup>**

1. Cyclophosphamide
2. Temozolomide

They treat many different types of cancer, such as leukemia, lymphoma, Hodgkin's disease, multiple myeloma, and sarcoma, as well as breast, lung, and ovarian cancers. As they kill bad cells, though, they can also destroy your bone marrow in the process, which can cause leukemia years later.

2. One type of chemo drug interferes with the normal metabolism of cells, which makes them stop growing.

**Antimetabolites**

1. 6-mercaptopurine
2. 5-fluorouracil

Doctors often use them to treat leukemia and cancer in the breasts, ovaries, and intestines.

3. This chemotherapy attacks the enzymes inside cancer cells' DNA that help them divide and grow. They work for many types of cancer.

**Anthracycline**

- 1) actinomycin-D

## 2) daunorubicin

High doses of anti-tumor antibiotics can damage your heart or lungs.

## 4. Drugs called mitotic inhibitors stop cancer cells from making more copies of themselves.

They can also stop your body from making the proteins that cancer cells need to grow.

Might

**Mitotic inhibitors**<sup>[9]</sup>

## 1. Docetaxel

## 2. Estramustine

Prescribe them for breast and lung cancers and types of myeloma, leukemia, and lymphoma.

## 5. Another type of medicine, called topoisomerase inhibitors, also attacks enzymes that help cancer cells divide and grow.

**Topoisomerase inhibitors**

## 1. Etoposide

## 2. Irinotecan

They treat some types of leukemia and cancer of the lung, ovaries, and intestines, among other types.

## 6. Steroids are drugs that act like your body's own hormones. They are useful in treating many types of cancer, They can prevent allergic reactions to some of the drugs.

**Steroids**<sup>[10]</sup>

## 1. Prednisone

## 2. Methylprednisolone

**Side effects of chemotherapy**

Chemotherapy is designed to kill cells that divide quickly. While cancer cells are these kinds of cells, other cells in your body divide quickly as well. Cells in the following areas can be adversely affected:

## 1. blood

## 2. hair

3. skin
4. Lining of your intestinal tract

### The 10 most common side effects include

1. Illness and a weakened immune system
2. Bruising and bleeding more easily
3. Hair loss
4. Nausea and vomiting
5. Neuropathy<sup>[11]</sup>: Neuropathy is nerve pain caused by damaged nerves.
6. Trouble breathing: Sometimes, chemotherapy can damage a person's lungs, reducing their capacity, which makes it harder for them to get the oxygen they need. Breathing issues can also be a side effect of some types of cancer.
7. Constipation and diarrhea
8. Rash
9. Mouth sores
10. Pain

### Effects on the Body Chemotherapy

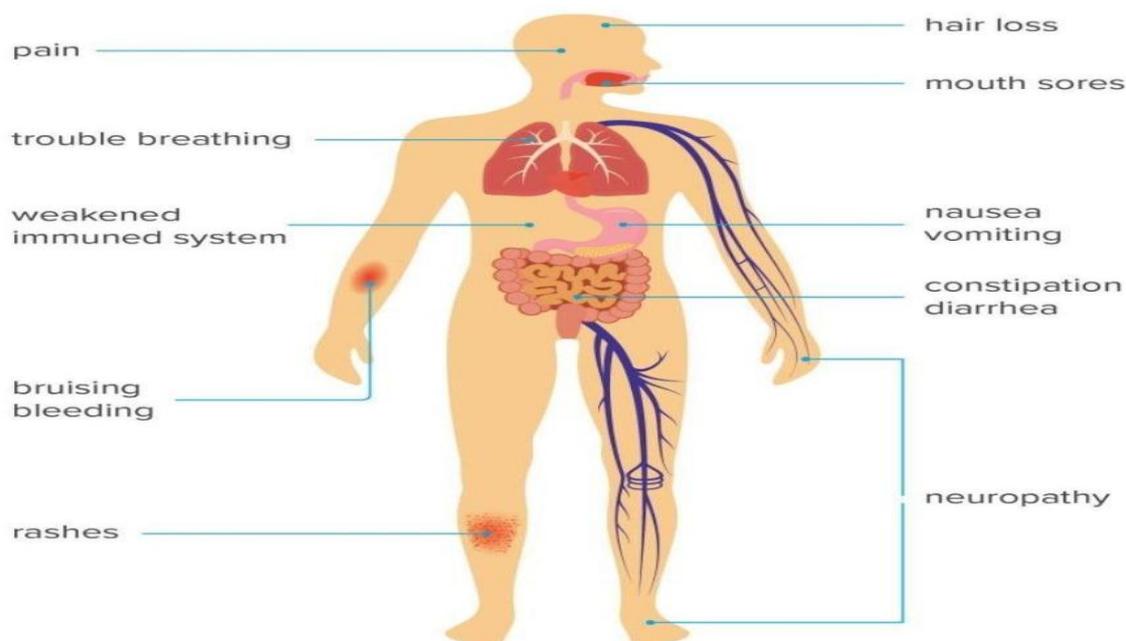


Figure no. 2: Effect of chemotherapy on body.

## CONCLUSION

From the above review study, it is easy and clear information about Chemotherapy. It also help in knowing about what is chemotherapy, how it works, Drugs used in chemotherapy as well as side effects of chemotherapy. Patients who suffers from cancer which is not well known about chemotherapy they can easily get knowledge about chemotherapy from above Review study.

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