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Gastrointestinal Side Effects of Treatment for Non-Small Cell Lung Cancer

Treatment options for non-small cell lung cancer (NSCLC) carry the risk of side effects, many of which affect your gastrointestinal (GI) system. The GI system breaks down food into nutrients and eliminates waste from the body. This system begins at the mouth and ends at the anus following the "digestive tract." This resource will help you understand the GI side effects specific to each type of treatment you may receive for NSCLC.

There are 3 main types of NSCLC:

1. **Adenocarcinoma** (A-deh-noh-KAR-sih-NOH-muh) Usually starts in cells that make mucus near the outer edges of the lungs.

2. **Squamous cell carcinoma** (SKWAY-mus) Usually starts in the thin, flat cells of the lung's airways.

3. **Large cell carcinoma** Can start in any part of the lung.

If you or someone you care for has NSCLC, you are not alone. NSCLC is one of the most common cancers in the United States. This fact sheet is for anyone affected by the diagnosis of NSCLC. This resource focuses on the side effects of treatment for NSCLC. More specifically, how NSCLC treatment can affect your GI system. Knowing about this disease, its treatment, and side effects will help you face the next steps with more knowledge and confidence.

NSCLC is the most common form of lung cancer and has many treatment options. NSCLC gets its name due to the size and shape of the cancer cells.

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A variety of treatments can be used to treat NSCLC. The most common treatments include:

SURGERY – also called “operation,” a procedure to remove or repair a part of the body.

CHEMOTHERAPY – also called “chemo” uses drugs to attack and kill cancer cells.

RADIATION – uses high-energy rays to kill cancer cells by damaging their genetic material.

CHEMORADIATION – combines chemotherapy and radiation and can be more effective than either alone in treating NSCLC.

IMMUNOTHERAPY – uses the body’s natural defenses (the immune system) to identify, attack, and kill cancer cells.

TARGETED THERAPY – may be used to treat NSCLC by blocking the action of certain genes, proteins, or molecules that cause cancer to grow and spread.

ABLATION THERAPY – also called “radio-frequency ablation (RFA)” uses heat made by radio waves to kill cancer cells. “Cryotherapy” uses freezing to do the same thing.

Each treatment comes with a similar set of side effects, many of which affect the gastrointestinal (GI) system.

There are many parts of the GI system. The *lips, teeth, and tongue* are all vital parts that make up the **mouth.** *Saliva* is the thick colorless fluid in the mouth. Many glands work together to make or “secrete” saliva. These glands are called *“salivary glands.”*

After the mouth, the system continues into the **throat**, also called the *“pharynx.”* The throat is responsible for separating food from air in our bodies. This keeps food out of our lungs and air out of our stomach. The next vital organ is the **esophagus** (ee-SAH-fuh-gus). It is made of mostly muscle. It loosens and tightens to push food from the throat into the stomach. The **stomach** is like a bag that stores food when first eaten. Glands in the stomach make *digestive fluids.* These fluids begin to break down food for digestion. The stomach also moves to further break food down.

After the stomach, broken down food goes to the intestines. The **intestines** are a group of muscular tubes that complete digestion. This is where the nutrients from food are absorbed by the body. The **small intestine** is first and responsible for mixing and moving nutrients. Though it’s called the small intestine, it’s actually between 22-25 feet (6.7-7.6 meters) in length! It uses proteins called *enzymes* (EN-zimes) and *bile* (also called gall). These come from the liver and further break down food. Carbohydrates, proteins, and fats are broken down. This allows the body to absorb them. Special folds and small pores in the intestines absorb the nutrients.

Any leftover liquid and waste goes to the **large intestine.** This is also called the "colon." The colon is shorter than the small intestine, about 5 feet (1.5 meters). It is much thicker though; about 3 inches (6 cm) across. The colon absorbs water and electrolytes. Electrolytes, like potassium, help support your body's function.

The **rectum** and **anus** are the final stops before a bowel movement. The rectum is bag-like and at the end of the colon. It stores waste (fecal matter/feces) until it can be removed from the body. The rectum is normally empty, but if filled with gas, liquids, or solids, pressure builds. This pressure tells your brain that it is time to have a **bowel movement.** When you're ready, muscles around the rectum contract and feces leaves the body, passing through the anus.

The GI system uses other organs as well. Some are not part of the digestive tract. These include the:

1. **LIVER** – Filters waste and toxins, makes bile, stores energy
2. **GALLBLADDER** – Stores bile
3. **PANCREAS** – Makes "pancreatic juices," which contain enzymes and hormones, like insulin

The GI system is complex and uses many organs. The organs work to digest food. These organs are exposed to everything we put into our bodies. This includes treatments for NSCLC.

With its many tasks and organs, treatment can affect the GI system. You may notice changes in your GI system. These are called "side effects" or "adverse effects." This is how your body responds to treatment. Side effects can happen and vary depending on the treatment you are receiving. Side effects can be beneficial or harmful. Most stop on their own overtime. However, some may last even after you have finished treatment.

In the next sections, we'll discuss possible side effects. We will also talk about how to make small changes. These can help to keep side effects under control.

Mouth and Throat Changes

Some cancer treatments cause changes in the mouth and throat. These changes can affect your ability to eat. This may mean you no longer enjoy foods you liked before treatment. Radiation therapy can harm salivary glands. It can also change the inside of the mouth. This can make it hard to chew and swallow. Other treatments like chemotherapy and immunotherapy can affect cells in the mouth, throat, and lips.

As a result of your treatment, you may experience:

- Changes in taste or smell
- Dry mouth
- Mouth sores
- Pain or swelling in the mouth or throat
- Sensitivity to hot or cold foods
- Difficulty swallowing
- Tooth decay
- Oral thrush – also called candidiasis (kan-dih-DIE-uh-sis), a fungal infection in the mouth. If you have thrush, the most common symptom is white patches on the tongue, inner cheeks, and throat.

These side effects may seem minor, but they can become serious if left untreated. This can lead to malnutrition or dehydration. **Malnutrition** happens when you don't get enough calories or nutrients. These include vitamins and minerals. This can happen because of changes in your diet. If your body is unable to absorb nutrients, these side effects may happen. Diet and your ability to absorb can be impacted by treatment. **Dehydration** happens when the body loses too much water. Without enough water, the body can't work normally. This can happen because of treatment side effects. Dehydration is also caused by not drinking enough water. Ask your health care team how much water is recommended for you. Too much water can also be dangerous. To mitigate these side effects, be sure to check and clean your mouth daily. Speak to your health care team about brushing and flossing recommendations. This is especially important if you are at risk of bleeding.

For sore mouth or throat, choose foods that are easy to swallow. Soften hard or dry foods with gravy, sauces, or other liquids. Avoid any foods that cause discomfort. Crunchy, spicy, salty, or sour foods may cause pain. It is best to avoid alcohol and tobacco products.

For dry mouth, drink plenty of liquids. Dry mouth can lead to tooth decay and infections. Keep water handy and drink often to keep your mouth wet.

Some therapies can change your taste. Radiation therapy may change the way you taste certain flavors. Chemotherapy can cause a chemical or metallic taste in the mouth.

These side effects are often temporary. Many resolve within three months of treatment for many people. If mouth and/or throat changes impact your ability to eat, drink, or sleep, you should speak with your care team. ***Consider asking questions like:***

How long will this last?

What can I do to feel better?

Are there any medicines that may help?

Should I speak to a dietitian or other specialist about this?

Nausea & Vomiting

Nausea is a sick feeling in your stomach. **Vomiting** is also called "throwing up" or "puking." These side effects are common during treatment for NSCLC. Not all treatments cause nausea. There are many medications to control or even prevent nausea.

If you experience nausea or vomiting, try:

- Sucking on ice chips or popsicles
- Drinking carbonated beverages that have lost their fizz (gone flat)
- Eating bland foods like toast, crackers, or gelatin. You can also use pasta or rice if you have difficulty with dry foods.
- Avoiding spicy or fried foods and those that have strong aromas

Tell your health care team if you experience nausea or vomiting. They may be able to offer anti-nausea medications (antiemetics). You can ask your doctor about alternative treatments. Acupuncture and acupressure can relieve nausea.

Throughout your treatment, try to eat a light meal or snack before each dose. Eat 5-6 smaller meals during the day rather than 3 large meals. If you do use an antiemetic, know how to take it correctly. You may need to take them before, during, or immediately after treatment. You may need to take them a few days following treatment. You can use these medicines beyond treatment. This helps if you are doing something that has made you feel sick before (like eating or riding in a car).

Constipation or Diarrhea

Constipation is when it is difficult to have a bowel movement. This is a problem for many people receiving cancer treatment. Surgery, inactivity, and dehydration can contribute to changes. Pain medications and some cancer drugs can also cause constipation.

To manage constipation, try to eat more foods that promote bowel movements. Drink 8-12 glasses of water or other fluid each day. Warm drinks and fruit juices – especially prune, apple, and pear – may be helpful. If your doctor recommends more fiber, find it in fresh fruits and vegetables. Also ask your health care team about any foods to avoid.

Food changes may not be possible due to discomfort or other side effects. Try to increase your activity. Getting 15-30 minutes of moderate physical activity can help alleviate constipation. Gentle exercises like yoga, walking, and stretching may help too. Talk to your health care team about medicines that may help with constipation. Always talk to your health care provider before using fiber supplements, laxatives, or stool softeners. These can be dangerous especially if your blood counts are low.

If abdominal pain, lack of bowel movement, or cramping lasts for more than two days talk to your health care team. These symptoms may be signs of a bowel obstruction and can be serious.

Diarrhea is described as frequent, loose, or watery bowel movements. Some chemotherapy drugs can cause diarrhea. Infections, certain surgical procedures, and radiation can also lead to diarrhea. Diarrhea causes the body to lose fluid and can lead to dehydration. This can be dangerous if not corrected.

To manage diarrhea, make sure you drink 8-12 glasses of fluid each day. This can prevent dehydration. Fluids should be at room temperature and may include water, ginger ale without fizz, or sports drinks. Clear broths are another option. You should try to avoid caffeine. It can stimulate bowel movements and irritate your GI system. Caffeine can also cause you to become more dehydrated. It is best to avoid hot, cold, and alcoholic beverages.

Some foods can help or worsen diarrhea. It is best to eat 5-6 small meals rather than 3 large meals. Spicy or fatty foods and milk products can worsen diarrhea. Eating low fiber foods like the “BRAT Diet” (Bananas, Rice, Apples/apple sauce, and Toast) can help.

It is important that you wipe gently after each bowel movement. Baby wipes may be more comfortable than toilet paper. Frequent wiping can irritate the anus. This can cause pain and put you at risk of infection.

Do not take over-the-counter anti-diarrheal drugs (like Pepto-Bismol® or Imodium®) before speaking with your health care team. Diarrhea can be a sign of infection or virus. Your health care team may want to test a stool sample before you take any medication. If your doctor gives you medication for diarrhea, make sure you understand how to take it. If you are experiencing more than 3 episodes of diarrhea in a day, call your health care provider.

Weight Changes

It is common to experience weight changes before, during, and after NSCLC treatment. These changes can be caused by many parts of the cancer experience. New medications, surgeries, less physical activity, and your emotional state can be related to changes in weight. Some changes are temporary, but some may last longer. If you are concerned about weight loss or gain, speak with your health care team. Health care teams will be able to offer solutions based on your specific situation.

Weight change can be a very personal thing. You may have wanted to lose or gain weight even before you were diagnosed. Your doctor may not want you to change your weight at all. Above all, focusing on nutrition and reasonable physical activity should be your goal.

Sudden changes in weight can be severe and cause complications in your treatment and overall health. **Cachexia** (kuh-KEK-see-uh) is an involuntary loss of 5% or more body weight within six months. Cachexia can impact anyone with a chronic illness but occurs in about half of people with lung cancer. Cachexia is a metabolic (MEH-tuh-BAH-lik; chemical changes in the body that produce energy) condition. It can change your appetite, your ability to do physical activities, and your muscle tone. Cachexia is difficult to diagnose and often misunderstood. About 60% of people with lung cancer experience cachexia or its symptoms. If you have experienced involuntary weight loss it is important to address this with your health care team. Cachexia is not just a side effect of treatment. It is a distinct condition.

Using food to manage weight changes

Food choices can lead to changes in weight. *To manage weight gain,* try to eat more low-calorie fruits, non-starchy vegetables, and high-fiber whole grains. Avoid higher calorie foods made with creamy sauces, cheeses, oils, and fried foods. Choose baked or broiled lean meats like fish, chicken, and turkey over high fat meats like beef and pork. Sugar-sweetened beverages, baked goods, and processed foods offer little nutritional benefit. Beverages like water, seltzer, and plain teas can be flavored with fruits to satisfy any cravings.

To manage weight loss, add healthy high-calorie foods to your diet. These can include avocado, olive oil, or nut butters. Maintaining muscle mass is extremely important. Include more high-protein foods to help your body heal and prevent muscle loss. These may include nut products, beans, meats, fish, eggs, and dairy products.

Using physical activity to manage weight changes

The best thing you can do to lose, gain, or maintain weight is regular physical activity. Aim for at least 15-30 minutes of moderate physical activity each day. Find a friend or family member to stay active with you. If you are able, consider cardio, stretching, and resistance training for muscle health. If you find physical activity more difficult, talk to your health care team. *Physical therapy* may be an option. Before making any changes to your physical activity, speak to your health care team. Your cancer center may have a physical therapy program or can refer you to one.

Keep a food journal and meal plan

Planning and tracking what you eat can help you achieve your goals. Having a record of your diet can also help you and your care team find parts of your diet that can be improved. This can be a tool for you to set goals and learn what foods may cause problems you didn't expect.

Symptom Management

If you are taking an oral therapy, contact your oncologist before stopping even if you experience side effects. Your health care team can provide you with many services. There are ways to help you manage GI side effects. Care teams will help with any issues due to NSCLC or its treatment. If able, meeting with a nutritionist/dietitian and your cancer pharmacist before you start treatment is ideal. This allows you to understand side effects that can happen and get ideas to help GI side effects. This is more helpful than trying to treat side effects when they arise.

Keep a journal of any side effects. You should note when they happen, how long they last, and their severity. This can help your care team plan ways to deal with them. It is important to know who your main contact for your care team is, and how to reach them. Remember, your team can't help if you don't report your symptoms. **Some members of your care team that may be able to help with side effects include:**

Advanced Practice Providers (APPs)

APPs are licensed and specialized providers who can perform physical exams, order diagnostic tests, and sometimes prescribe medication. These providers include Physician Assistants (PAs) and Nurse Practitioners (NPs; also called Advanced Practice Nurses/APNs) among others.

Nurses (RNs)

Nurses will likely speak with you most often throughout treatment. Nurses are critical to helping you manage symptoms and can advocate for you to other members of the care team.

Pharmacists (PharmDs)

Pharmacists have special training in preparing and giving prescription drugs. They know how drugs work, how to use them, and their side effects. Your pharmacist can help you prepare for any side effects that may happen.

Nutritionists/Registered Dietitians

A nutritionist or registered dietitian (RD) can help recommend foods, meal plans, and provide nutritional counseling. These professionals can fine tune your diet based on your specific cancer and treatment plan. There are also RDs who have specialized training to work with people with cancer called “oncology dietitians.”

Palliative Care Specialists

Palliative care can start at any point in your cancer experience. Palliative care is different from hospice and end-of-life care. The goal of palliative care is to achieve comfort, manage symptoms and side effects, and improve your quality of life.

Physical Therapists (PTs)

PTs are experts of movement and specialize in helping you improve, maintain, and restore mobility. PTs can develop a specific plan and set of goals for your physical activity and wellbeing.

Occupational Therapists (OTs)

OTs are like physical therapists that specialize in daily activities. Daily activities are things like showering, dressing, and feeding yourself. They help you maintain and restore your ability to complete common tasks. They can also teach you what you can do differently.

Complementary and Integrative Medicine (CIM)

Many cancer treatment centers combine standard therapies with many other types of treatments. This is considered a complementary approach. Treatments include nutrition counseling, relaxation, exercise, acupuncture, chiropractic techniques, guided meditation, and massage therapy. It is important you talk with your doctor to learn more about these services and what combination may be most beneficial for you.

Receiving an NSCLC diagnosis is challenging. Things like side effects, especially those in the GI system, only make this experience harder. Asking your health care team questions is the best thing you can do. Taking their advice before, during, and after treatment is important. This can help you and your loved ones manage any complications that may happen. Educating yourself and loved ones about these potential side effects can help you navigate your treatment and take control of your overall well-being.

LUNG CANCER INFORMATION AND SUPPORT

Cancer Support Community
1-888-793-9355
https://CancerSupportCommunity.org

American Lung Association
800-586-4872 – **www.Lung.org**

GO2 Foundation for Lung Cancer
800-298-2436 – **www.GO2Foundation.org**

Lung Cancer Research Foundation
844-835-4325 – **www.LCRF.org**

LUNGevity Foundation
888-360-5864 – **www.LUNGevity.org**

American Cancer Society
800-227-2345 – **www.Cancer.org**

CANCER SUPPORT COMMUNITY RESOURCES

Cancer Support Helpline®
Have questions, concerns or looking for resources? Call CSC's toll-free Cancer Support Helpline (888-793-9355), available in 200 languages Mon-Thurs 11am-8pm ET and Fri 11am-6pm ET.

Open to Options®
Preparing for your next appointment? Our trained specialists can help you create a list of questions to share with your doctor. Make an appointment by calling 888-793-9355 or by contacting your local CSC or Gilda's Club.

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Trusted information for cancer patients and their loved ones is available through publications, online, and in-person programs.

Services at Local CSCs and Gilda's Clubs
With the help of 190 locations, CSC and Gilda's Club affiliates provide services free of charge to people touched by cancer. Attend support groups, educational sessions, wellness programs, and more at a location near you. **www.CancerSupportCommunity.org/FindLocation.**

Cancer Experience Registry®
Help others by sharing your cancer patient or cancer caregiver experience via survey at **www.CancerExperienceRegistry.org.**

MyLifeLine® — CSC's secure, online community welcomes anyone impacted by cancer to easily connect with community to reduce stress, anxiety, and isolation. Create a personal network site and invite friends & family to follow your journey. And participate in our discussion forums any time of day to meet others like you who understand what you are experiencing. Join now at **www.MyLifeLine.org.**

Grassroots Network — Make sure your voice is heard by federal and state policy makers on issues affecting cancer patients and survivors by joining our Network at **www.CancerSupportCommunity.org/become-advocate.**

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