Cancer-related cognitive changes: what do I need to know?

Cognitive changes after cancer and its treatment (often referred to as chemobrain or chemo-fog) are receiving increased clinical attention. In the past, physicians often considered these changes to be related to anxiety or distress and may have dismissed them as not a real medical concern. We now know that up to 75% of individuals may experience mild cognitive changes from cancer and its treatment. The good news is that for most people, chemobrain symptoms typically resolve within 6 to 12 months after finishing all cancer treatments.

What are the symptoms of chemobrain?

Although symptoms can vary quite a bit between patients, reported changes are often in the areas of memory, attention and concentration, planning, multitasking, speed of thinking, and/or word-finding. You may experience these concerns in different day-to-day situations (e.g., self-care, work or educational activities, leisure and social activities, driving). Here are some common things people may report (although not everyone experiences these problems).

It may be harder to:

- Remember to do things I need to do (e.g., take medications, make appointments)
- Remember where I put things (e.g., glasses, phone, keys)
- Remember to pick up everything I need when shopping
- Remember names
- Stay focused on a task to completion (e.g., paying my bills and balancing my finances in one sitting)
- Meet deadlines/goals (e.g., completing a homework assignment or work project on time)
- Keep track of several ideas/tasks at once (e.g., following a recipe and talk on the phone)
- Study for examinations
- Keep track of events/dates (e.g., keeping track of medical appointments)
- Focus while reading a book or article
- Find the right words to express myself or communicate my ideas clearly
- Keep up with conversations and think fast on my feet

What causes chemobrain?

The term chemobrain may not be the best word to describe this problem; however, the assumption was that chemotherapy was the cause of these problems (therefore, chemo-brain). However, many chemotherapy drugs do not readily cross the blood-brain barrier and affect the brain. Many scientists believe that symptoms develop from the body’s reaction to chemotherapy. The immune system releases a number of chemicals (e.g., inflammatory cytokines) to counteract injury or disease (e.g., when someone comes down with the flu). Elevations in these chemicals can make one feel achy, foggy, and fatigued, forcing one to rest (think about how it feels to have the flu). One prevailing theory is that chemotherapy triggers the release of these chemicals and contributes to fuzzy or foggy thinking, commonly called chemobrain.

Recent research suggests factors other than chemotherapy may be playing a role in the cognitive symptoms reported by patients with cancer, including:

- Radiation therapy
- The cancer itself
- Hormonal changes from drugs used to treat some types of breast cancer that block estrogen (e.g., tamoxifen, anastrozole) or block testosterone for those treated for prostate cancer
- Poor sleep
- Side effects from other medications (e.g., pain medications, some nausea medications, corticosteroids) that are often used during some cancer treatments
- Elevated stress, anxiety, or depression

What can I do to cope and deal better with cancer-related cognitive changes?

- Allow time to recover: if you have not yet completed all your cancer treatment (i.e., chemotherapy, radiation therapy), be
reassured that 75% or so of survivors go back to their baseline cognition within 6 to 12 months of finishing active treatment.

- Talk to your doctor: make sure your doctor reviews all your medications (in case any of them could contribute to your cognitive symptoms) and basic laboratory values (eg, thyroid function, blood count) in case other medical factors may be contributing to your cognitive symptoms. Your doctor also may recommend undergoing a neuropsychological assessment to fully evaluate your cognitive functioning.
- Manage your mental energy: alternate difficult tasks with easier and enjoyable tasks. Use your best times of day for your most challenging tasks.
- Minimize multitasking: try to do one thing at a time. Complete one task before moving on to another. Break multistep tasks into smaller components. Keep a notepad and pen or smartphone nearby to jot down other to-do items or thoughts to minimize distractions and help you remember those items later.
- Organize yourself: keeping your work space and living area more organized may help with your efficiency. Choose specific places to store items (eg, keys, glasses) and return them to the same spot. Keep your work space clear and free from clutter and distractions.
- Eat well: nobody knows for sure the best diet for chemobrain. Nevertheless, it would be reasonable to promote a well-balanced diet with an attempt to try to avoid processed foods, added sugars, and trans-fats. One study in older adults without cancer suggested that a Mediterranean diet (which may include fish, fruits, vegetables, whole grains, and healthy fats such as olive oil) helped reduce cognitive problems.
- Exercise: some recent evidence suggests that moderate aerobic exercise (ie, physical activity at a pace during which you are able to talk but not sing) during or after chemotherapy can help reduce these cognitive symptoms. It is also well-known that exercise is important for combating fatigue, helping mood, and possibly even improving survival rates. Talk to your doctor about an exercise regimen that is right for you.
- Sleep: make sure you are doing what you can to guard your sleep. The relation between poor or inadequate sleep and cognitive challenges cannot be overemphasized. If you are having difficulty getting adequate sleep or struggling with insomnia, be sure to discuss this with your doctor.
- Manage depression and anxiety: there is a tremendous amount of overlap between the symptoms of depression and anxiety and the symptoms of chemobrain. Talk to your doctor about changes in your mood (eg, feelings of sadness, helplessness, or worry). You may benefit from speaking to a skilled therapist, exploring medications for mood, or practicing mind-body exercises (eg, gentle yoga, mindfulness meditation, Tai Chi). Cognitive behavior therapy is one type of talk therapy that is often used to treat depression and anxiety and can be helpful to manage the stress associated with chemobrain. Contact a psychologist or other mental health professional who is experienced in providing psychological counseling.
- Consider cognitive rehabilitation: talk to your doctor about the possibility of cognitive rehabilitation programs for these symptoms, if available in your area. Although more research is needed, there is now some evidence that rehabilitation programs specifically focused on coping strategies for these cognitive changes can be useful for some cancer survivors. These programs are typically led by neuropsychologists, speech-language pathologists, or occupational therapists.
- Try to be mindful and enjoy life, family, and friends.

**Authorship**

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**Suggested Readings**