



CHEMO BRAIN

An information sheet for patients, families and whānau

Chemo brain is a common term used to describe changes in thinking and memory for those who have been through cancer and treatment. Chemo brain may refer to forgetfulness, slower thinking, difficulty concentrating or confusion. It is also known as 'chemo fog', cancer-related cognitive impairment or cognitive dysfunction.

Chemo brain is a condition that can be caused by chemotherapy treatment, the cancer itself, or secondary medical conditions such as infection or anaemia (low red blood cell count). The exact cause might be hard to identify and it is likely that there are multiple causes.

The majority of people on active treatment for their cancer will experience symptoms of chemo brain.

No matter the cause, chemo brain can be a frustrating and debilitating side effect of cancer and its treatment. Researchers are working to understand more about the memory changes that people with cancer experience.

The three main components of chemo brain are:

1. Working memory (short-term memory) – the amount of new information that can be learned at one time may be diminished.
2. Retrieving previously learned information might be inefficient.
3. The ability to focus on a task or do several tasks at one time may be more difficult.

Reasoning and problem-solving tend not to be affected.

These changes can have a significant impact on your daily life. You may become overwhelmed when more than one thing is happening at the same time, like multiple conversations. You may become easily distracted, miss important information during a conversation or have trouble meeting deadlines. Completing daily tasks may require increased effort when previously you could do them on 'autopilot'.

Signs and symptoms of chemo brain may include the following:

- Being unusually disorganised
- Confusion
- Difficulty concentrating
- Difficulty finding the right word
- Difficulty learning new skills
- Difficulty multitasking
- Feeling of mental fogginess
- Short attention span
- Short-term memory problems
- Taking longer than usual to complete routine tasks
- Trouble with verbal memory, such as remembering a conversation
- Trouble with visual memory, such as recalling an image or list of words

When to see a doctor

It is important to let your doctor know if you are experiencing any change in thinking or memory. It can be useful to keep a journal of your signs and symptoms so that your doctor can better understand how your memory problems are affecting your everyday life.

What are the causes of chemo brain?

Cancer-related causes could include:

- The cancer itself (especially if there is brain involvement)
- Psychosocial impact of a cancer diagnosis (stress, anxiety, depression, worry)
- Cancer treatments:
 - Chemotherapy
 - Stem cell/bone marrow transplant
 - Hormone therapy
 - Immunotherapy

- Radiotherapy
- Surgery
- Targeted drug therapy
- Complications of cancer treatment:
 - Anaemia
 - Fatigue
 - Infection
 - Early menopause or other hormonal changes
 - Sleep problems
 - Pain

There may be other contributing factors, which is why it's important to discuss your symptoms with your health care team.

Tips for self-management of chemo brain

The first step is to identify and correct any medical problems that may be causing the condition. These include hormonal changes, thyroid problems or anaemia.

In some cases, drug therapy may be appropriate. Your doctor will discuss any possible options available to you.

Behavioural and lifestyle changes that can help improve chemo brain include:

- Relaxation training, yoga and pilates can help to focus attention.
- Gentle daily exercise can help with fatigue and attention.
- Daily planners and smartphones are extremely useful for people with cognitive problems.
- Create a daily list of tasks, and prioritise those that are most important to do first.
- Have an end-of-day checklist to be sure tasks were accomplished, and use devices with audible alerts, like smartphones, to help you stay organised and on task.
- Pace yourself and take frequent breaks.
- Organise tasks around the times of day when you are most energetic.
- Delegate tasks whenever possible.
- Make sure you get enough sleep as this can help with cognitive function and improve fatigue (see our Sleep Fact Sheet).

You may find it helpful to manage forgetfulness by creating routines and habits. Examples include:

- Park your car in the same place if you tend to forget where you left it, and write down the location in your phone and/or diary.
- Use a pillbox to help you remember which medications to take and when (refer to your Yellow Card or pharmacy printout).
- Use automatic payments or direct credits for paying bills.
- Make a 'memory station' in your home (a place where you always put important items like car keys so that they can be easily found).

Tell others. Besides letting your doctor know, tell your family and friends that you have trouble remembering. They will be able to help you set up daily routines and will be understanding if you have any issues around remembering.

Some games like Sudoku, crossword puzzles or video games may be useful for engaging and stimulating your brain, but might not be helpful for everyone. For example, trying to do a crossword to help with your word retrieval difficulties might not help, but it may be good for concentration or retrieving information from your long-term memory.

For most people, the symptoms of chemo brain reduce over time, many returning to their normal level of functioning within 12 months after treatment. For some, however, it may persist for years.

If your symptoms are persisting, or you are experiencing anxiety and/or low mood, then it is important to go back to your doctor. If you are unable to work, there might be options for going on a disability benefit or getting referred to a doctor who specialises in brain function.



Important information available online

For more information and to download other fact sheets, see our website www.leukaemia.org.nz