For cancer patients, maintaining muscle is vital to health and treatment, but staying strong is complicated

January 5 2024, by Meghan McCue

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Nearly one-third of cancer patients die from a side-effect you've likely never heard of: cancer cachexia.

With cachexia, a patient loses a significant amount of weight due to their disease, with considerable losses of muscle mass. Muscle plays essential roles in movement, exercise and metabolism. Simple things like walking up the stairs, doing laundry and taking a breath are only possible because of muscles.

Despite the significance of cachexia for cancer patients, there has been very little progress in treating the condition.

What exactly is cancer cachexia?

Cancer cachexia is an unintentional loss of body weight that mainly affects muscle. It is diagnosed when a cancer patient loses more than five percent of their body weight over six months. For a 180-pound (82-kilogram) person, this would equate to nine pounds, or four kilograms, lost.

Skeletal muscle is a remarkable organ that can repair and rebuild itself regularly. Muscle experiences periods of breakdown and rebuilding every day. When we exercise, we induce muscle damage, that is then repaired, to make even stronger muscles. In a healthy person, this keeps muscle mass balanced and relatively unchanged day-to-day. However, in a condition like cachexia, this system is no longer balanced.

During cachexia, we see increases in the pathways responsible for muscle breakdown and decreases in the pathways responsible for muscle rebuilding. These changes result in gradual and consistent muscle tissue breakdown, resulting in muscle loss. This muscle loss also means lost strength and increased fatigue. Excessive muscle loss can eventually cause the heart and lungs to stop working properly, causing death.

Cancer cachexia is complex, and is likely caused by many factors working together. Inflammation from cancer or chemotherapy, reduced appetite and food intake, or even specific interactions between a tumor and muscle could all play a role.

The impact of cachexia on patients

Cancer cachexia can have a significant impact on a patient's quality of life and prognosis. While muscle wasting is not typically painful, the general loss of strength, muscle function and, ultimately, independence can be jarring.

Many everyday tasks are impacted by loss of strength and increased fatigue. Activities like exercise, gardening, showering or getting dressed all grow increasingly difficult as muscle disappears. Cachexia can also influence how well certain chemotherapies work. Patients with cachexia tend to have lower treatment tolerances than those of healthy body composition.

Emotionally, cachexia can be extremely difficult to manage. Cachexia patients report struggling with body image, loss of independence and becoming a burden to their loved ones. They also tend to have higher rates of anxiety and depression.

Treating cachexia

Unfortunately, Canada lacks standardized options for treating patients with cancer cachexia.

Research suggests that treating cachexia should use a multi-targeted approach. Nutritional interventions are essential for combating cachexia and should be started as soon as possible with consultation from a registered dietitian.

Exercise could be a very powerful tool to treat cachexia. A combination of aerobic and strength exercises is likely most beneficial. Exercise can also improve general quality of life and mental health of cancer patients.. It is important that any exercise interventions are accompanied by nutritional support and supervision, so that muscles have adequate material and energy to rebuild, and patients can have safe and adapted programs.

Studies on pharmacological compounds to treat cachexia have produced varied results, and many are still in early phase clinical trials. While this is a promising area of research, patients cannot currently access cachexia-specific drugs outside of clinical trials.

Diagnosing and detecting cachexia

Perhaps the biggest limitation in treating cachexia is detecting it early enough to intervene. Diagnosing cachexia is largely based on weight-related measures. Unfortunately, many health-care professionals are not performing these basic diagnostic assessments.

An international study found that only about half of health-care professionals surveyed thought newly diagnosed cancer patients should be weighed. Cachexia is likely underdiagnosed and, therefore, under-addressed among Canadians.

Further, using weight loss as the standard diagnostic criteria may not be an accurate or sensitive tool. Conditions like obesity may mask the detection of muscle loss when only weighing patients. Studies have also found that strength and muscle integrity changes are apparent before weight loss.

Integrating strength assessments as well as body composition scans across all points of the cancer journey could help capture the whole picture of cachexia development and progression.

Where to go from here

Cachexia has a massive impact on cancer outcomes and patient quality of life. The sooner it is detected, the better chance there is to manage it. Management should involve a multi-disciplinary team that can help with diet, exercise and psycho-social aspects of the condition.

Current research is focusing on developing medications that can specifically target the pathways of muscle wasting. It will likely be years before these reach the clinic, so early interventions with nutrition, exercise and regular monitoring are critical. More robust diagnostic criteria, such as imaging as well as strength and functional assessments, could help.

Cancer is a life-changing disease, and it's important to ensure that patients can stay as strong as possible during the process.

Understanding cancer cachexia means prolonging both quantity and quality of life for Canadians.

Provided by The Conversation