

Locoregional Hyperthermia (LRHT) in Cancer Care: Patient Resource

What is locoregional hyperthermia?

Hyperthermia as a medical treatment refers to heating the body, or part of the body, to higher than typical temperatures, usually 39-44°C. Locoregional hyperthermia (LRHT) is a particular type of hyperthermia that only heats a part of the body (where a tumor is located) to high temperatures, ideally 41-43°C.

Why do people use it?

LRHT is used by some people with cancer with the goal of improving the effects of other cancer treatments like chemotherapy and radiotherapy. It is also sometimes used as palliative treatment.

Does it work?

Well over 100 studies have looked at the effect of LRHT on people with cancer. Many of these studies looked at whether it is safe and feasible, but others have looked at how effective it is.

Hyperthermia appears to be most effective when used with other treatments (usually chemotherapy or radiotherapy). There is limited research on its use as a sole therapy. In general, there is evidence that LRHT can improve treatment outcomes (i.e. provide better tumor shrinking, better survival, or lower recurrence rates) in patients with:

- Breast cancer that has returned to the breast/ chest wall
- Cervical cancer
- Esophageal cancer
- Gastric (stomach) cancer

- Head and neck cancer
- Soft-tissue sarcoma

There is some promising evidence for other types of cancer including bladder cancer, melanoma, rectal cancer, and pancreatic cancer, but more research from good quality studies is needed before making conclusions. For other cancer-types that are not mentioned, there either has not been enough research to make a comment, or the results have not been overly favourable. It should be noted that hyperthermia has been studied and used without safety concerns for patients with brain tumors, colon and anal cancers, liver and biliary cancer, Hodgkin's lymphoma, lung cancer, ovarian cancer, prostate cancer, and vulvar and vaginal cancer.

It is important to discuss with your healthcare provider whether LRHT is likely to provide benefit for you or not, as effects will vary based not only on the type of cancer, but also the cancer stage, past treatments, current treatments, and planned treatments.

How does it work?

LRHT can do many things in the body, some of which are quite complex. Hyperthermia may:

- Cause blood vessels to dilate, which may improve delivery of medications to the tumor.
- Enhance the effect of radiation therapy and many types of chemotherapy (this is often called radiosensitizing and chemosensitizing).
- Impact immune function, and in some cases may help the immune system to identify and kill cancer cells.

Is it safe?

LRHT is generally safe and well tolerated when administered with an approved device by a qualified healthcare provider or technician. There are times when LRHT may not be safe, including patients with:

- Implanted medical devices
- Inability to feel or respond to pain
- Severe lung or heart disease
- Fever
- Organ transplant
- Recent surgery
- Poor circulation in the area
- Previous radiation to the area

You should discuss the safety of the treatment with your healthcare provider/team.

What are the side effects?

Side effects are generally mild and include:

- Discomfort during treatment
- Mild pain
- Redness to the area
- Skin burns
- Subcutaneous fibrosis

Rarely, deep burns (to the layer under the skin) have been experienced.

Can it interact with other treatments and medications?

LRHT can be used alongside chemotherapy and radiation therapy. LRHT has not been well studied with immunotherapy or targeted therapies, and thus no comment can be made regarding these combinations at this time. There are no known interactions with other commonly used cancer treatments such as hormone blocking therapies, although research is limited. There are no known interactions with other commonly used medications except for medications that alter your level of

consciousness, ability to feel pain, or ability to communicate. You should always discuss your medications with your health care team before starting any new treatment.

How is LRHT used?

Treatment is most often given 1-2 times weekly during chemotherapy or radiation therapy, and treatments usually take 60-90 minutes. LRHT should be given during or after chemotherapy, or before, during, or after radiation, as close in time as possible (generally within a few hours). In North America, LRHT is usually administered at private complementary or integrative healthcare centres, and costs are usually between \$350-\$450 per treatment.

Devices vary and consequently the procedures for the treatment also vary. Generally, the patient will be positioned on a table so that heat can be applied to the area of the tumor or metastasis. Patients are monitored during and after the treatment including taking blood pressure and heart rate.

References and additional information

This patient resource is a summary of our fully referenced healthcare provider resource available at thechi.ca/research/#research-summaries.

Disclaimer:

This monograph provides a summary of available evidence and neither advocates for nor against the use of a particular therapy. Every effort is made to ensure the information included in this monograph is accurate at the time it is published. Prior to using a new therapy or product, always consult a licensed health care provider. The information in this monograph should not be interpreted as medical advice nor should it replace the advice of a qualified health care provider.