LOCAL THERAPIES FOR STAGE IV

In stage IV colorectal cancer, the cancer has travelled to distant organs such as the liver or lungs. There are many treatments aside from chemotherapy for treatment of stage IV disease.

Illustration of Liver and Lung Metastases

Treating liver metastases

If the cancer has travelled to the liver, chemotherapy can be used to shrink the tumours before the surgery and to prevent recurrence after surgery. In many cases, the metastases (secondary tumours) are too small and/or scattered throughout the body making surgery nearly impossible to remove the tumours. Chemotherapy can still be used to shrink the tumour if surgery is not possible.

There are different chemotherapy treatments available for a metastatic patient such as: Hepatic Arterial Infusion Pump (HAIP) Chemotherapy and Embolization Procedures (Chemoembolization and DEBIRI).
Hepatic Arterial Infusion Pump (HAIP) Chemotherapy*
HAIP is a small, disc-shaped device that gets surgically implanted below the skin of the patient and gets connected through a catheter to the hepatic artery of the liver. Chemotherapy will be directed through this pump to the liver, while avoid travelling to the rest of the body preventing side effects. HAIP chemotherapy is intended for metastatic patients who cannot undergo surgery and only have the cancer located in the liver.

Illustration of HAIP

During HAIP, a small disc is placed below the patient’s skin where a catheter is inserted into the hepatic artery of the liver allowing chemotherapy to be delivered straight to the liver.

*An ongoing study is available at Sunnybrook Health Sciences Centre

Chemoembolization
Chemoembolization is also known as transcatheter arterial chemoembolization (TACE). TACE treats tumours in the liver by administering large doses of chemotherapy directly at the site. A catheter is placed into the artery and high doses of chemotherapy get pumped through to the tumour, killing the cancer cells, and causing the tumour to shrink.
During chemoembolization, chemotherapy is directed to the tumour killing the cancer cells.

_Courtesy of: Society for Interventional Radiology_
_image Source: www.SIRweb.org_

**DEBIRI**

DEBIRI involves tiny beads that contain highly concentrated doses of a chemotherapy drug irinotecan. These beads are threaded through a catheter that goes from the blood vessel into the artery located in the groin which supplies blood to the liver. These blood vessels get partly blocked by the beads, while the concentrated chemotherapy in high doses is directed to the tumour slowing or in some cases stopping the tumour growth.

_Image Source: https://abdominalkey.com/wp-content/uploads/2016/06/image00883-1.jpeg_
Treating lung metastases
In the case of lung tumours treatments options include surgery, radiation, and chemotherapy. Some of the newer techniques involve combinations. One such example is In Vivo Lung Perfusion.

In Vivo Lung Perfusion
In Vivo Lung Perfusion involves introducing chemotherapy directly to the lungs via a surgical procedure. During the procedure, air circulation and blood circulation are separated from the rest of your body, so that chemotherapy can interact with lung tissue directly. Once the perfusion is complete, the surgeon will resect the areas of the lung with metastases.

Illustration of In Vivo Lung Perfusion

To read more about In Vivo Lung Perfusion and to view an educational video, please visit: [https://pie.med.utoronto.ca/TVASurg/project/in-vivo-lung-perfusion/](https://pie.med.utoronto.ca/TVASurg/project/in-vivo-lung-perfusion/)