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OF CANADA

For additional Information Sheets or to learn more about other brain tumour topics, visit www.BrainTumour.ca

Brain Tumour Foundation of Canada Information Sheets are provided as an informational and educational tool and are not intended to replace the advice or instruction of a professional healthcare practitioner, or to substitute for medical care. We urge you to seek specific medical advice on individual matters of concern.

Brain Tumour Foundation of Canada is generously supported by individuals, corporations and employee groups. It is through the tireless dedication of donors that help is available for anyone affected by a brain tumour, including patients, survivors and their loved ones.

Ask the Expert Information Sheet

What is the Role of Lasers in the Current Management of Malignant Brain Tumours?

By: Dr. Brian Toyota

Lasers are one of the newer technologies used to treat malignant gliomas using minimally or non-invasive strategies. The other technique utilizes focused ultrasound. Both technologies use hyper-thermia to kill tumour cells, which essentially means the glioma is killed by heat.

In fact lasers have been used in medicine for decades; what has made them more effective is the ability to monitor their effect. This is done by a real-time MRI scan which monitors the temperature of the brain/tumour during laser treatment. In this way, the surgeon can eradicate a large volume of tumour cells and also protect the normal brain. In a similar way, focused ultrasound will target deep brain tumours and direct high heat to the tumour, but spare the normal brain.

These two technologies are slowly replacing the standard operation: open craniotomy. They are usually done with a very short hospital stay and have significantly less risks than open craniotomy. They are very good at quickly killing a large volume of tumour, but do not actually remove the tumour tissue. This dead tumour tissue is evidently reabsorbed by the body like any other scar tissue.

The other major benefit of using heat to kill brain tumours is that it leads to better penetration of chemotherapy drugs into the brain. Many effective chemotherapy drugs are not used in brain tumours because they cannot penetrate into the brain (by what is called the blood-brain-barrier). After the tumour is lasered, the area around it shows to have increased absorption of chemotherapy drugs for up to 6-8 weeks. This is one additional benefit of using laser or ultrasound to kill tumour cells.

The use of laser is still very young, but rapidly growing with most major brain tumour centres in North America adopting the technology. Because of its youth we are still learning for how it is best deployed in the entire strategy to control and cure brain cancer. While much of the early usage has been for recurrent tumours, we are now using the laser as the first treatment, instead of surgery.

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Additional support, information and education offered by Brain Tumour Foundation of Canada:

Adult, Pediatric and Non-Malignant Brain Tumour Handbooks available in English and French.

“A Friend in Hope” children’s storybook available in English and French.

20+ Adult Support Groups across Canada (in-person and virtual)

Toll-free information and support line

BrainWAVE Pediatric Support Program

Print BrainStorm Newsletter
Email Newsletters:
• E-BrainStorm
• Peace of Mind

“Grey Matters” Blog

Canadians have taken a strong lead in the advance of both technologies, with ongoing research on their benefits and application. It is expected that access to both technologies will greatly increase and be more readily available to all Canadians.

Author:

Dr. Brian Toyota is head of the Division of Neurosurgery at University of British Columbia and Vancouver General Hospital. Dr. Toyota serves on the Editorial Board for the Canadian Journal of Neurosciences, World Neurosurgery; Co-Chairs the Royal College Specialty Committee, Neurosurgery and also serves on the Examination Board for the Royal College for Neurosurgery. Dr. Toyota will be the keynote speaker at the second Join the Movement to End Brain Tumours National Conference on Saturday, October 21, 2017 in Toronto, ON.

Learn more about the Join the Movement to End Brain Tumours National Conference at www.BrainTumour.ca/BrainTumourConference

All patient resources are available free-of-charge in Canada. Call 1-800-265-5106 or visit www.BrainTumour.ca for additional details and information.



braintumour
foundation
OF CANADA

205 Horton St E
Suite 203
London, Ontario
N6B 1K7

T 519.642.7755
1 [800] 265.5106
F 519.642.7192
www.braintumour.ca

