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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

Stereotactic Radiosurgery

By: Dr. Glenn Bauman

What is Stereotactic Radiosurgery and how does it work?

Stereotactic radiosurgery is a specialized radiation technique designed to deliver single, large doses of radiation to small areas within the brain. This treatment is usually performed using a special head frame (for positioning and immobilizing the person) combined with precision localization of the area to be treated by computed tomography (CT) or magnetic resonance imaging (MRI) followed by radiation delivery on a specialized radiation machine using many, small, highly focussed radiation beams.

Treatments are usually delivered over a small number (1-5) of treatment sessions and higher doses per treatment are used compared to typical brain radiotherapy (typically 10-30 treatments).

Gamma knife and Cyberknife are specialized radiation machines that are designed especially for stereotactic radiosurgery.

Radiosurgery can also be performed on specially modified linear accelerators (radiation machines used to treat cancer) as well as modified Proton beam units. All of these types of machines can deliver equally high quality radiosurgery.

Just as important as the type of Radiosurgery equipment is the availability of an experienced team of Neurosurgeons, Radiation Oncologists, Neurologic Radiologists, Physicists and Radiation Therapists who are available to advise patients on their options and coordinate and deliver the treatment.

Do we have this treatment available in Canada?

Specialized radiation machines like Cyberknife and Gamma Knife are available in some Cancer Centres and Hospitals in Canada. Linear accelerators that are able to deliver radiosurgery treatments are available in most Cancer Centres in Canada. Proton beam radiosurgery is not available in Canada.

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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:
• BrainStorm
• Peace of Mind

"Grey Matters" Blog

What patients are eligible for this treatment?

Stereotactic radiosurgery seems to be most effective in treating people with small low-grade / non-malignant tumours in the brain (such as arteriovenous malformations, some meningiomas or acoustic neuromas) as well as selected people with cancer that has metastasized (spread) to the brain. Stereotactic radiosurgery is not appropriate for people with large tumours, tumours that are involving many different areas of the brain, tumours that are close to certain structures like the eyes or optic nerves or tumours that are diffuse (spreading within normal brain tissue). For patients with these types of tumors, fractionated stereotactic radiotherapy given over longer periods of time (10-30 daily treatments over 2-6 weeks) can be a safer alternative than radiosurgery.

Author:

Thank you to Dr. Glenn Bauman, a Radiation Oncologist, for his time answering these important questions. Dr. Bauman is a member of our Professional Advisory Group.

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

📞 519.642.7755
1 [800] 265.5106
📠 519.642.7192
www.braintumour.ca

