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08 April 2009 | News



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Dr. John R. Adler, President of CyberKnife Society

Dr. John R Adler, is the inventor of CyberKnife Robotic Radiosurgery System. He has been a member of the faculty at Stanford University and a professor of neurosurgery and radiation oncology at Stanford University School of Medicine since September 1998. He is also the president of CyberKnife Society. Dr Adler started the company Accuray to commercialize his scientific development. Though Accuray manufactures the CyberKnife System the patent for this technology was sold to Stanford University in 1994. CyberKnife is the first and the only non-invasive radiosurgery system available globally. In India, HCG offers CyberKnife whole body robotic radiosurgery therapy .

Will you tell us about the CyberKnife technology and its applications?

The CyberKnife Robotic Radiosurgery System is a non-invasive alternative to surgery for the treatment of both cancerous and non-cancerous tumors anywhere in the body, including prostate, lung, brain, spine, liver, pancreas and kidney. The treatment delivers beams of high dose radiation to tumors with extreme accuracy. CyberKnife is offering a new hope to patients worldwide as the treatment is devoid of any surgery. In fact, the CyberKnife system is the world's first and the only robotic radiosurgery system designed to treat tumors throughout the body noninvasively.

The technology offers new hope to patients who have inoperable or surgically complex tumors, or who may be looking for an alternative to surgery for cure many small tumors and a few other medical disorders. Unlike other radiosurgery systems, which are primarily used for the treatment of head cancers, CyberKnife can deliver radiosurgery to any part of the body.

The system also gives some added benefits to patients, including pain free treatment, no anesthesia, less recovery time and lower risk of radiation damage to normal tissues.

Is CyberKnife technology purely based on radiation therapy for treating tumors?

Yes. In this kind of treatment the patient is imaged using a high-resolution CT scan to determine the size, shape and location of the tumor. Following scanning, the image data is digitally transferred to the workstation of CyberKnife system, where the treatment planning begins. A qualified doctor then uses the CyberKnife software to generate a treatment plan. The plan is used to match the desired radiation dose to the identified tumor location while limiting radiation exposure to the surrounding healthy tissue. Then the CyberKnife System's computer-controlled robot will slowly move around the patient to the various locations from which it will deliver radiation to the tumor.

What are the advantages of CyberKnife over conventional radiotherapy?

Conventional radiation therapy administers a broad beam of radiation from one or two directions in 30 to 45 treatments. It delivers low dose beams of radiation over a period of 6-8 weeks. Whereas CyberKnife radiosurgery delivers high dose beams of radiation, which can be more effective in killing tumors anywhere in the body. This system can deliver radiation beams from virtually unlimited directions with sub-millimetre accuracy. Radiosurgery minimizes the damage to the surrounding tissues and therefore the treatment can be completed in 3-5 days.

What is the time taken for the treatment using CyberKnife?

Each treatment session lasts between 45 to 90 minutes, depending on the type of tumor being treated. If treatment is being delivered in stages, patients will need to return for additional treatments over several days (typically not more than five days), as determined by the doctor.

What about the side effects?

It has no side effects. In a few cases, patients may experience some minimal side effects, but those often go away within a week or two after treatment.

How do you plan to expand the use of this technology globally?

CyberKnife has been there since 1994. The current one is the fourth generation technology. To date, more than 50,000 patients have been treated and more than 155 systems are installed worldwide. We have been waiting for the improvements to come and now we are happy to introduce the same machine here in India. Introducing CyberKnife treatment in India for the first time is a huge milestone in achieving broader access to the benefits of radiosurgery. Technology drives up the cost of healthcare. But CyberKnife when properly used is less expensive than all other technologies. With early detection, it is capable of curing 100 percent of cancer.

CyberKnife facts

- Approved by USFDA in 2001 to treat tumors and lesions anywhere in the body when radiation treatment is required.
- Over 155 CyberKnife systems currently operating in the world.
- Over 50,000 patients have been treated successfully.
- Currently more than 50 percent of all CyberKnife procedures in the US are extracranial.

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