

PROTON: THE NEW AGE APPROACH TO TREAT CANCER

The use of proton therapy is likely to make some significant advances in the next five years given the current research momentum especially in the US to look into expanding its use in the treatment of more cancers, said Dr Jerry Slater, Professor and Chair of the Department of Radiation Medicine (DRM), Loma Linda University (LLU).

Proton therapy is already used in the treatment of prostate, brain, lung, eye, head and neck, as well as tumours in children, among others, and has been referred to as "bloodless surgery". This therapy is arguably a superior type of radiation therapy that permits a more precise delivery of a higher dose of tumour destroying energy.



It's been two years since LLU started treating breast cancer patients with Proton Therapy, and it has proven to be a good alternative treatment. "So we are looking at a number of cancer cases, including liver cancer patients, who may not have the typical options to see how we can give them the same outcome," he said.

Studies at LLU show that when higher doses of conformal proton therapy are delivered at the target site, the results show a "low incidence of side effects" compared to conventional radiation, according to Dr Slater, who is also Medical Director and Director of Clinical Affairs for DRM at the Loma Linda University Medical Center (LLUMC) in Southern California.

"In the treatment of uveal melanomas, we have been able to carry out the procedure without causing the patient to lose his eye, unlike the conventional treatment where the doctors will remove the eye to cure the patient.

"In fact in some instances, our patients are able to see better after the proton treatment," said the bespectacled and slim-built Canadian scientist, who is a radiation oncologist by training. He was in Singapore to deliver the 8th Humphrey Distinguished Lecture at the National Cancer Centre Singapore (NCCS) on August 4 2009. The lecture was titled, *"Proton Therapy: The Future of Radiation Therapy or a Passing Fad?"*

Just as the x-ray radiation had faced some adverse comments from its skeptics in its early days, the proton treatment too has its share of negative fall out from some in the medical community. "What you need is to give time for the methodology to mature and develop, and it is getting better all the time," said Dr Slater, 53, who felt that there is much more that proton can offer but the possibilities have not been explored.

He said the side-effects of proton treatment is much less and patients are able to enjoy a better quality of life. "Many of our patients go home and continue to lead their normal lifestyle," he added. An estimated 14,000 have undergone this treatment at LLU Center and worldwide, some 50,000 patients have benefited since its introduction in 1990.

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Dr Chua Eu Tiong, Head of Department of Radiation Oncology presenting a memento to Dr Jerry Slater.

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Today, many leading cancer centres in the US have moved beyond the stage of making inquiries to the next phase of wanting to have the proton treatment installed at their institutions.

Commenting on his first visit to NCCS, he said he was impressed with the very progressive facility and the cutting edge research work being conducted. He noted that NCCS is striving to be a leader in the field and looking for new and better therapies to treat cancer sufferers. "I think the proton treatment will fit into its search as the next generation of radiation therapy," said Dr Slater.

According to Dr Slater, efforts have been made to reduce the cost of the equipment and its installation. Today it is 30 per cent cheaper than at its onset and he points out that every developing technology is expensive. It will take about three to five years to set up a facility and train the medical team.

Explaining his interest in radiation oncology, Dr Slater said "I am actually following my father who had an interest for 30 years. He has been working on this for 20 years and I had finished my fellowship in radiation oncology and joined him. It grew from there."

The success of proton therapy has largely been a team work started by his father Dr James M. Slater. In fact in 2007, the LLU Medical Center was formally re-named the Loma Linda proton facility for James M. Slater.

Dr Slater said his father did all the initial work from the medical perspective. Later teams of physicians, physicists and engineers were assembled to develop the world's first hospital-based proton treatment system.

"He is a radio oncologist and saw the side effects of things and he has a physics background and realised proton is a much better tool than x-ray. In the last lap he ended up doing the technical part and I did the clinical work. So we both got to doing it together," said Dr Slater who is married with three grown up children.

By Sunny Wee