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Alpha radiation treats prostate cancers

By James Gallagher Health reporter, BBC News



Alpha particles can damage cells

A trial of a new cancer drug, which accurately targets tumours, has been so successful it has been stopped early.

Doctors at London's Royal Marsden Hospital gave prostate cancer patients a powerful alpha radiation drug and found that they lived longer, and experienced less pain and side effects.

The medics then stopped the trial of 922 people, saying it was unethical not to offer all of them the treatment.

Lead researcher Dr Chris Parker said it was "a significant step forward".

Cancer Research UK said it was a very important and promising discovery.

Radiation has been used to treat tumours for more than a century. It damages the genetic code inside cancerous cells.

Alpha particles are the big, bulky, bruisers of the radiation world. It is a barrage of helium nuclei, which are far bigger than beta radiation, a stream of electrons, or gamma waves.

Dr Parker told the BBC: "It's more damaging. It takes one, two, three hits to kill a cancer cell compared with thousands of hits for beta particles."

Alpha particles also do less damage to surrounding tissue. He added: "They have such a tiny range, a few millionths of a metre. So we can be sure that the damage is being done where it should be."

Prostate cancer

- Each year in the UK about 36,000 men are diagnosed with prostate cancer; about 10,000 die from it
- In most cases, it is a slow-growing cancer and may never cause any symptoms or problems.
- Some men will have a fast growing cancer that needs treatment

- Worldwide, an estimated 913,000 men were diagnosed with prostate cancer in 2008, and more than two-thirds of cases are diagnosed in developed countries

In 90% of patients with advanced prostate cancer, the tumour will have spread to the bone. At this stage there are no treatments which affect survival.

The study looked at patients with these secondary cancers, as the source of radiation - radium-223 chloride - acts like calcium and sticks to bone.

Half were given the radium-223 chloride drug alongside traditional chemotherapy, while the other patients received chemotherapy and a dummy pill.

The death rate was 30% lower in the group taking radium-223. Those patients survived for 14 months on average compared to 11 months in the dummy group.

The trial was abandoned as "it would have been unethical not to offer the active treatment to those taking placebo", said Dr Parker.

He added: "I think it will be a significant step forward for cancer patients".

Researchers also said the treatment was safe. Curiously there were fewer side-effects in the group taking the treatment than those taking the dummy medicine.

The findings are being presented at the [European Multidisciplinary Cancer Congress](#) but they have not yet been peer-reviewed by other academics.

Prof Gillies McKenna, Cancer Research UK's radiotherapy expert and director of the Gray Institute for Radiation Oncology and Biology, said: "This appears to be an important study using a highly targeted form of radiation to treat prostate cancer that has spread to the bones.

"This research looks very promising and could be an important addition to approaches available to treat secondary tumours - and should be investigated further."