Genetic test is new weapon in fight against terminal cancers

Chris Smyth Health Editor

Thousands more cancer patients could benefit from cutting-edge drugs if they were offered a genetic test, a study suggests.

Tumours vanished entirely in a fifth of patients with a particular type of DNA damage, even if they had types of cancers not normally treated with immunotherapy drugs, researchers reported. Most patients with the genetic changes had their tumour shrink.

The scientists said that the findings pointed to a new way of treating cancer based on genetic markers, rather than where in the body a tumour developed.

Drugs that help the body's natural defences fight back against tumours are one of the most exciting prospects in cancer research, with some patients who were thought to be terminally ill being effectively cured by medicines that aid the immune system. However, most patients do not see their tumours respond, and working out who is most likely to benefit from this particular treatment is one of the most pressing areas of cancer research.

In the latest study, scientists at Johns Hopkins University in the US looked at 86 patients whose tumours all had defects in a DNA repair mechanism known as MMR. Importantly, they had 12 different types of cancer, including those of the prostate, bowel and pancreas, many of which are not routinely treated with immunotherapy.

Tumours shrank in 53 per cent of patients and disappeared in 21 per cent after they were given an immunotherapy drug. The disease was kept under control in 77 per cent of patients and response rates were similar for different cancers, researchers reported in *Science*.

Alan Melcher, professor of translational immunotherapy at the Institute of Cancer Research in London, said the key finding was that "there are shared genetic factors across cancer types which predict the response to immunotherapy".

About 5 per cent of cancers are thought to have the particular MMR defect, equivalent to about 12,000 patients a year in the UK. Some US clinics have started routinely testing patients to see whether they would benefit from the treatment.

Cancers of the prostate, bowel, pancreas and gall-bladder and some types of skin tumour are more likely to have MMR defects, so such patients could be given priority for testing.

"There are issues of screening and cost and the reality of testing every patient with cancer with this defect, but in an ideal world [that is what would happen]," Professor Melcher added.