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Q&A: The immunity shield

Dr James Larkin, Consultant Medical Oncologist at The Royal Marsden and a Reader at the ICR, explains why immunotherapy represents a promising new approach to cancer treatment.

What is immunotherapy?

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58%

of patients had their tumours shrunk by ipilimumab and nivolumab

What is immunotherapy?

Immunotherapy is a form of treatment that reawakens the immune system so it can fight disease. We?re developing effective immunotherapy treatments that are better able to harness the power of the immune system to kill cancer. Unlike many other drugs for cancer treatment, it is not always necessary to administer immunotherapy for long periods.

How successful has it been in trials so far?

The drug ipilimumab was one of the first immunotherapies to be successfully trialled for the treatment of advanced melanoma.

It was initially assessed on its own and it controlled melanoma for long periods in 15-20% of patients, with manageable side effects. Compared with ipilimumab alone, single-agent pembrolizumab or nivolumab ? both monoclonal antibodies to the PD-1 receptor ? have shown impressive response rates with durable clinical benefit across clinical trials in advanced melanoma.

A Phase III trial showed that a combination of ipilimumab and nivolumab was significantly more effective at delaying cancer progression than ipilimumab alone. In 58% of patients, the two drugs combined shrank tumours and stopped the cancer advancing for nearly a year on average. For immunotherapies, we?ve never seen tumour shrinkage rates of more than 50%, so this will have a big impact on the future of cancer treatment.

Immune-based treatments are currently in development for renal cell and lung cancers, and nivolumab has also been approved to treat kidney cancer.

15,000

cases of melanoma are diagnosed every year in the UK, making it the fifth most common cancer

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What are the downsides?

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Historically, immunotherapy has been a toxic treatment and not benefited many patients. This has changed dramatically in recent years.

What are the next steps?

We?re looking at extending this success into other tumour types. Research is being carried out in head and neck cancer, bladder cancer, lung cancer and Hodgkin lymphoma. For melanoma patients, we are now looking at adjuvant treatment, in conjunction with surgery. For patients with high-risk resected stage III melanoma, we are investigating the role of adjuvant anti-PD-1 therapy in preventing subsequent relapse of disease.

How is the BRC supporting this work?

The BRC plays an integral role in pioneering collaborative translational research. ADAPTeM and ADAPTeR are BRC-funded clinical trials exploring the mechanisms of response and resistance to anti-PD-1 therapy in metastatic melanoma and advanced renal cell cancer respectively.

The BRC awards given to ADAPTeM and ADAPTeR have been crucial in funding longitudinal tumour biopsies in patients with advanced disease, enabling the in-depth assessment of the tumour microenvironment over the course of anti-PD-1 therapy.

Ultimately, this information will increase our understanding of the mechanistic activity of immunomodulatory antibodies and help identify predictive biomarkers of clinical response and resistance to anti-PD-1 therapy.

15-20%

of patients had their melanoma controlled for long periods by ipilimumab

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