# Harmless human virus may be able to boost the effects of chemotherapy

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A naturally-occurring harmless human virus may be able to boost the effects of two standard chemotherapy drugs in some cancer patients, according to early stage trial data published in Clinical Cancer Research.

The paper titled: Phase I/II trial of carboplatin and paclitaxel chemotherapy in combination with intravenous oncolytic reovirus in patients with advanced malignancies with first author Eleni M. Karapanagiotou from the ICR and The Royal Marsden was published in the print edition of Clinical Cancer Research on April 1.

RT3D, trade name Reolysin, is a new drug developed by Oncolytics Biotech Inc with preclinical and clinical studies conducted at The Institute of Cancer Research (ICR) and The Royal Marsden Hospital. It is based on a virus (reovirus type 3 Dearing) that is found in almost all adults' respiratory and gastrointestinal tracts without causing any symptoms.

RT3D has the ability to grow in and kill certain types of cancer cells, but does not grow in normal cells.

Previous trials injecting patients with the virus on its own showed limited effectiveness, but the team found that RT3D appeared to magnify the effects of platin and taxane-based chemotherapy on tumour cells.

Dr Kevin Harrington and colleagues in Leeds therefore started a clinical

trial testing intravenous RT3D in combination with chemotherapeutics carboplatin and paclitaxel in 31 patients with advanced cancers who had stopped responding to standard treatments.

An initial Phase I study was carried out in patients with a range of advanced cancers, which showed the drug combination was safe. Side-effects were found to be generally mild, and consistent with chemotherapy alone.

Patients with head and neck cancers were found to have the best responses, so a Phase II expansion study at The Royal Marsden Hospital, London, and St James's Hospital, Leeds, was therefore targeted to patients with these types of cancers.

Cancers shrank for about one third of the patients who could be evaluated, and disease stabilised for a further third. For one patient, all signs of their cancer disappeared.

"We saw really very impressive response rates in these patients. These are patients whose cancers had grown despite a great deal of previous treatment, including platinum-based chemotherapy for many," Dr Harrington, Leader of the ICR's Targeted Therapy Team and Consultant Oncologist at The Royal Marsden, said. "Under those circumstances, we'd expect that the average response rate to chemotherapy alone might be as low as single digits figures and the average survival would be somewhere between three to four months. In our Phase I/II study we show this had been prolonged to an average of seven months, albeit not in a randomised trial."

"Based on the results of this study we've now started recruiting patients with advanced head and neck cancer to a randomised Phase III trial, in which all patients will receive chemotherapy and half will receive Reolysin as well. We are extremely excited about this progress."

The study also found the virus was not shed after treatment. This means people could be given the drug as outpatients as no risk was found that they could transmit the virus to others.

**More information:** Phase I/II trial of carboplatin and paclitaxel chemotherapy in combination with intravenous oncolytic reovirus in patients with advanced malignancies with first author Eleni M. Karapanagiotou from the ICR and The Royal Marsden publishes in the print edition of *Clinical Cancer Research* on April 1.

The Phase III trial is recruiting patients with head and neck cancer who have already been treated with platinum but not taxane. More details at: clinicaltrials.gov/ct2/show/NCT01166542

Provided by Oncolytics Biotech Inc.