

First trial of pemetrexed with radiation and chemo in lung cancer shows promising results

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The first trial of an important new combination therapy of treatment with the chemotherapy drug pemetrexed concurrent with radiation in lung cancer has delivered promising results, French researchers report at the 2nd European Lung Cancer Conference.

The results of the Phase I trial suggest that pemetrexed, unlike some other modern [chemotherapy drugs](#), is well-enough tolerated to allow it to be administered at high dose with concurrent radiotherapy, increasing the effectiveness of the treatment.

Pemetrexed is currently indicated for the treatment of pleural mesothelioma and already has an established role in treating metastatic non-small-cell lung cancer. It has a chemical structure similar to folic acid, and prevents the formation of DNA and RNA by inhibiting the formation of the nucleotide bases.

Prof Françoise Mornex, head of the Department of Radiotherapy Oncology at Centre Hospitalier Lyon Sud and colleagues conducted the first trial of the drug in combination with radiotherapy and [cisplatin](#) chemotherapy in patients with stage III lung cancer (locally advanced, but not metastatic).

Nine patients with unresected stage III non-small-cell lung cancer were first given two cycles of chemotherapy, three weeks apart, with 500 mg/m² of pemetrexed plus 75 mg/m² of cisplatin. This was followed by two cycles of combined chemotherapy and radiotherapy, where doses of pemetrexed began at 400 mg/m² and were then escalated to 500mg/m² and 600 mg/m². Cisplatin and radiotherapy at 66 Gy/33 Gy fractions over seven weeks remained constant.

Among 10 patients who began treatment, one was

taken off the trial before dose escalation due to disease progression. Of the remaining nine, 7 completed all 4 cycles of chemotherapy, and 8 completed the radiotherapy.

One dose-limiting toxicity was recorded in a patient on the highest dose of pemetrexed. This was a grade 4 [septic shock](#).

"Pemetrexed at these doses was well tolerated when given concurrently with cisplatin and radiotherapy," Prof Mornex said. "It appears to be the only third generation agent that can likely be recommended safely at full dose in trials with concurrent [radiotherapy](#)."

"This is important because, most of the time, when combining radiation and chemotherapy concurrently, the dose of chemotherapy must be decreased due to excessive toxicity. The problem is that by reducing the chemotherapy dose, one reduces the efficacy of the chemotherapy on micro metastases and on the primary tumor. But with pemetrexed, the tolerance is good and allows us to maintain high cytotoxic doses during radiation, increasing the chance of killing cancerous cells."

"We are very happy to present these data, which will have an impact on clinical practice in the near future," Prof Mornex added. "This regimen is already being studied in several ongoing clinical trials around the world; it may become the treatment of choice in the future, for concurrent chemo-radiation schemes."

Provided by European Society for Medical Oncology

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