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## **Lung cancer survival rates improved through use of individualized chemotherapy**

### ***Use of in vitro drug response assay shows promise in lung cancer treatment***

Chemotherapy is the best broad defense against cancer recurrence after surgical resection. However, it is difficult to predict which patients will benefit from which regimen of anticancer drugs, if at all. Building on existing knowledge, a study published in the September edition of the *Journal of Thoracic Oncology* (JTO), analyzed the usefulness of adjuvant chemotherapy for non-small cell lung cancer (NSCLC) based on the histoculture drug response assay (HDRA). After seven years of study, researchers concluded that the use of adjuvant (post-operative) chemotherapy based on results of the in vitro HDRA improved the survival and prognosis of patients with NSCLC who had undergone surgery and whose results of the HDRA assay showed chemosensitivity to the specific drugs used for treatment.

The patients' chemosensitivity to cisplatin, carboplatin, paclitaxel, docetaxel, gemcitabine and irinotecan were examined by the HDRA assay. The patients in the study were then split into two groups: (1) those whose tumors were sensitive to at least two of the HDRA drugs and received two HDRA positive drugs per chemotherapy session (31 patients) and (2) those whose tumors were sensitive to one or none of the HDRA drugs and were treated with a combination of one HDRA positive drug and one HDRA negative or two HDRA negative drugs per chemotherapy session (34 patients).

The overall five-year survival rate for the prediction sensitive group given two HDRA positive drugs was 82.4 percent. In contrast, the five-year survival rate for the patients whose tumors indicated a low sensitivity or no sensitivity to the HDRA drugs and received one HDRA positive drug and one HDRA negative or two HDRA negative drugs was 40.1 percent. Additionally, the rate of relapse was lower for the patients in the prediction sensitive group. Relapse occurred in 29 percent of patients who were given two HDRA positive drugs per chemotherapy session while it occurred in 55.8 percent of patients who underwent the other treatment.

"Our research concluded that the HDRA assay seems to be useful for the selection of anticancer drugs in chemotherapy," explained lead investigator, Masayuki Tanahashi, MD. However, Dr. Tanahashi and his colleagues recommend further research into this treatment option.

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***Journal of Thoracic Oncology (JTO)*** – ([journals.lww.com/jto](http://journals.lww.com/jto))

The JTO is a prized resource for medical specialists and scientists who focus on the detection, prevention, diagnosis and treatment of lung cancer. The JTO is the official monthly journal of the International Association for the Study of Lung Cancer (IASLC.org) and emphasizes a multidisciplinary approach, including original research (clinical trials and translational or basic research), reviews and opinion pieces.