Lung cancer ALK rearrangement may predict pemetrexed efficacy, study shows

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Patients with ALK-rearranged non-small cell lung cancer (NSCLC) responded significantly better to pemetrexed (brand name: Alimta) than patients whose cancer did not show ALK translocation, according to research published in the September issue of the Journal of Thoracic Oncology, the official publication of the International Association for the Study of Lung Cancer (IASLC).

Lung adenocarcinoma can display genetic mutations, including anaplastic lymphoma kinase (ALK) rearrangement and epidermal growth factor receptor (EGFR) mutations. Knowing whether the tumor displays either of these oncogenic mutations can be key to effective treatment, as different cancers respond to different agents.

Researchers at Seoul National University genotyped 95 Korean NSCLC patients into three groups: 43 (45%) had EGFR mutations; 15 (16%) showed ALK rearrangement; and 37 (39%) had wild type (WT) NSCLC.

All patients received 500 mg of pemetrexed every 21 days. Treatment was continued until disease progression warranted termination, unacceptable toxicity was found, or until the patient or physician decided to discontinue therapy. Tumor response was evaluated every two cycles, or earlier if there were clinical signs of progression.

Treatment with pemetrexed delayed time to progression (TTP) of the disease by a median 9.2 months in ALK-rearranged patients, compared with 1.4 months for patients with EGFR mutations and 2.9 months for

wild type. Overall response rate was 46.7% for ALK-rearranged patients, compared with 4.7% for EGFR mutant and 16.2% for wild type. Disease control rate (DCR), including partial response plus stable disease, was 86.7% in ALK-rearranged patients, compared with 25.6% for EGFR mutant and 56.8% for wild type.

"Our study demonstrates that pemetrexed treatment produced significantly better outcomes in ALK-translocated NSCLC patients than in EGFR mutant or WT patients," researchers wrote. "DCRs, as well as overall response rates, were excellent in ALK-positive patients (86.7% of DCR and 46.7% of ORR). In addition, median TTP was nearly sixfold higher in ALK-positive NSCLC than in ALK-negative patients. ALK positivity alone was an independent predictor for the efficacy of pemetrexed treatment."

Although the study showed that ALK positivity could be a predictive biomarker for pemetrexed efficacy in patients with NSCLC, researchers cautioned that the larger size of the EGFR mutant group may have affected results, and that more studies were needed.

More information: journals.lww.com/jto/pages/default.aspx

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