African-Americans equally likely to benefit from erlotinib and other targeted lung cancer therapy

September 28 2010

African-American patients with non-small cell lung cancer are just as likely to display an epidermal growth factor receptor (EGFR) mutation in tumors as Caucasians, which suggests they are as likely to benefit from targeted therapies such as erlotinib.

"This study has immediate implications for patient management. Patients with EGFR mutations have a much better prognosis and respond better to erlotinib than those who do not," said Ramsi Haddad, Ph.D., director of the Laboratory of Translational Oncogenomics at the Barbara Ann Karmanos Cancer Institute, and assistant professor at Wayne State University School of Medicine.

Haddad's study, which he presented at the Fourth AACR International Conference on Molecular Diagnostics in Cancer Therapeutic Development, also showed that African-Americans were more likely to have mutations on exon 19, rather than exon 21, which suggests they would be even more responsive to erlotinib.

Erlotinib, currently marketed as Tarceva by Genentech, has shown remarkable benefits in non-small cell lung cancer patients with EGFR mutations. Other therapies are in development and the genetic testing is clinically available.

Previous studies had suggested that African-Americans had lower rates

of EGFR mutation, which researchers had offered as a possible explanation for their generally poorer prognosis.

However, Haddad's study was larger than previous reports. His research team observed 149 patients with non-small cell lung cancer (NSCLC), including 80 Caucasians and 69 African-Americans.

Using state-of-the-art technology that allowed for simultaneous detection of hundreds of oncogene mutations in clinical samples, they identified EGFR mutations in 20 of these patients, including 12 Caucasians and eight African-Americans. The difference was not statistically significant.

Moreover, 100 percent of the EGFR mutations in African-Americans were in exon 19, compared with only two-thirds of the mutations found in Caucasian patients.

"It is well-documented that the incidence of lung cancer is higher among African-Americans, particularly men, and that their survival is generally poorer compared to their white counterparts," said Haddad. "Our data suggest that African-Americans with NSCLC harbor mutations in EGFR at rates similar to whites. Thus, African ancestry should not be a factor when deciding whether to test a tumor for these mutations, as doing so could widen the disparity seen in survival. Physicians treating these patients may want to consider this new information in their treatment decisions."

Provided by American Association for Cancer Research