Autophagic activation with Nimotuzumab enhances chemo-radiosensitivity

May 13 2014

A study which will be published in the May 2014 issue of *Experimental Biology and Medicine* was aimed at determining whether an EGFR-targeted therapy combined with chemo-radiotherapy can improve local tumor control effectively, compared to cytotoxic agents or irradiation alone. Dr. Haizhu Song and co-workers from Jinling Hospital and the Medical School of Nanjing University in China demonstrated that nimotuzumab could enhance chemo-radiosensitivity by promoting autophagic cell death in esophageal squamous carcinoma (ESCC) cells.

Nimotuzumab is a humanized anti-EGFR monoclonal antibody that inhibits EGF-stimulated receptor autophosphorylation and downstream signaling pathways. The majority of prior investigations have focused on the therapeutic effects of nimotuzumab on cancer cells including cell cycle arrest and the induction of apoptotic cell death. Dr. Chen's laboratory detected the autophagic activity of ESCC cells following a combination of nimotuzumab with paclitaxel, cis-platinum or external beam radiation. These results showed that autophagic activation by nimotuzumab facilitated the antitumor effects of cytotoxic agents and irradiation in ESCC cells with high expression of EGFR. Therefore, nimotuzumab-combined therapy might be more beneficial for treating ESCC patients with a high level of EGFR expression and activation of autophagy; as part of a combined therapy or as an alternative approach to kill cancer cells more efficiently.

"We hope that our study will be meaningful in gaining a mechanistic understanding of nimotuzumab-combined therapy and provide a

potential strategy for improving therapeutic efficacy in esophageal squamous cell carcinoma," said Dr. Longbang Chen, corresponding author.

Dr. Steven R. Goodman, Editor-in-Chief of *Experimental Biology and Medicine* said "Song and colleagues provide evidence, worth pursuing, that activation of autophagy by nimotuzumab may provide increased chemosensitivity and radiosensivity in ESCC".

Provided by Society for Experimental Biology and Medicine