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## Hypoxia-targeted therapies for patients with nonsmall cell lung carcinoma

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**Introduction:** Based on pathoclinical characteristics, nonsmall cell lung carcinoma (NSCLC) accounts for approximately 90% of all lung cancers. Due to inadequacy of current therapeutic modalities, mortality rate of NSCLC is high, which emphasis on designation of new and more effective strategies. Hypoxia, defined as oxygen tension below physiological normoxia, is nearly exclusively restricted to cancer cells. Since hypoxia induces migration and metastasis of malignant cells, it is involved in treatment resistance and poor survival. In this regard, hypoxia-targeted therapies, alone or in combination with other modalities, would be associated with favorable clinical outcomes in NSCLC.

**Methods:** Recent articles including Keywords hypoxia biology; nonsmall cell lung carcinoma and targeted therapy were extracted from databases PubMed and Web of Science to review recent advances in hypoxia-targeted therapies for NSCLC patients.

**Results and Conclusion:** There are several options to target hypoxia; increase in oxygen delivery by agents like efaproxiral, decrease in oxygen consumption by drugs such as metformin, and use of hypoxia-activated toxic prodrugs such as evofosfamide to specifically target hypoxic cells. Based on reported trials, improved clinical outcome in hypoxia-targeted therapies would be observed if hypoxia is present in NSCLC, and this approach could counter with deleterious effects of hypoxia. It is obvious that more research is still required to develop other effective and less toxic hypoxia-targeted therapies, and efficacy of this strategy must also be investigated in combination with radiotherapy and chemotherapy to achieve best clinical outcomes.

**Keywords:** Hypoxia biology, Nonsmall cell lung carcinoma, Clinical outcome, Targeted therapy.