## Gefitinib

Gefitinib (trade name Iressa, marketed by AstraZeneca and Teva), is a drug used for certain breast, lung cancer and other cancers. Gefitinib is an EGFR inhibitor, like erlotinib, which interrupts signaling through the epidermal growth factor receptor (EGFR) in target cells. Therefore, it is only effective in cancers with mutated and overactive EGFR.

Development of epidermal growth factor receptor tyrosine kinase inhibitors (EGFR-TKIs): gefitinib or erlotinib, was an improvement in treatment of advanced NSCLC patients. EGFR mutations are present in 10-25% of NSCLC (mostly adenocarcinoma), and up to 55% in never-smoking women of East Asian descent. In the non-selected group of patients with BMF-NSCLC, the overall response rates after gefitinib or erlotinib treatment range from 10% to 38%, and the duration of response ranges from 9 to 13.5 months. In the case of present activating EGFR mutation, the response rate after EGRF-TKIs is greater than 50%, and in selected groups (adenocarcinoma, patients of Asian descent, neversmokers, asymptomatic BMF-NSCLC) even 70%. Gefitinib or erlotinib treatment improves survival of BMF-NSCLC patients with EGFR mutation in comparison to cases without the presence of this mutation. There is no data on the activity of the anti-EML4-ALK agent crizotinib. Bevacizumab, recombinant humanised monoclonal antibody anti-VEGF, in the treatment of advanced non-squamous NSCLC patients is a subject of intense research. Data from a clinical trial enrolling patients with pretreated or occult BMF-NSCLC proved that the addition of bevacizumab to various chemotherapy agents or erlotinib is a safe and efficient treatment, associated with a low incidence of CSN haemorrhages. However, the efficacy and safety of bevacizumab used for therapeutic intent, regarding active brain metastases is unknown<sup>1)</sup>.

Gefitinib, an EGFR tyrosine kinase inhibitor was used along with radiation for newly diagnosed GBM patients in RTOG 0211 trial. Treatment consisted of daily oral gefitinib (500 mg) started at the time of radiation and continued after radiation for 18 months or until progression. The trial reported median survival of 11.5 months only <sup>2)</sup>.

Patients with non small cell lung cancer intracranial metastases (NSCLC) receiving Gamma knife radiosurgery (GK) or gefitinib demonstrated extended survival. The improved survival seen with GK and gefitinib suggests a survival benefit in selected patients receiving the combined treatment. Further Phase II study should be conducted to assessment these influence <sup>3)</sup>.

## 1)

Cedrych I, Kruczała MA, Walasek T, Jakubowicz J, Blecharz P, Reinfuss M. Systemic treatment of nonsmall cell lung cancer brain metastases. Contemp Oncol (Pozn). 2016;20(5):352-357. doi: 10.5114/wo.2016.64593. Epub 2016 Dec 20. Review. PubMed PMID: 28373815; PubMed Central PMCID: PMC5371701.

## 2)

Mallick S, Gandhi AK, Rath GK. Therapeutic approach beyond conventional temozolomide for newly diagnosed glioblastoma: Review of the present evidence and future direction. Indian J Med Paediatr Oncol. 2015 Oct-Dec;36(4):229-37. doi: 10.4103/0971-5851.171543. Review. PubMed PMID: 26811592; PubMed Central PMCID: PMC4711221.

## 3)

Lin CH, Hsu KH, Chang SN, Tsou HK, Sheehan J, Sheu ML, Pan HC. Increased survival with the combination of stereotactic radiosurgery and gefitinib for non-small cell lung cancer brain metastasis

patients: a nationwide study in Taiwan. Radiat Oncol. 2015 Jun 6;10(1):127. [Epub ahead of print] PubMed PMID: 26048754.

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