

Anti-cancer Effects of Erlotinib (EGFR inhibitor) on Metastasis of Breast Cancer Cell Lines

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Abstract

Introduction: Breast cancer is the most common type of cancer found in women and today represents a considerable challenge to public health. Drug resistance is the main challenges for good prognosis of breast cancer patients. Recent clinical trials suggest that targeting of epidermal growth factor receptor (EGFR) could have a beneficent effect on many patients with cancer. Amplification/overexpression of the EGFR gene as a signature genetic abnormality of breast cancer tumors can be a chemo resistant mechanism.

Materials and Methods: In this study, we use Erlotinib as an EGFR inhibitor. We evaluate the effects of this drug on metabolic activity, viability, colony formation potential and migration of BC cell lines, MDA-MB-231, SK-BR-3 and BT-474.

Results: Our results showed that Erlotinib reduced metabolic activity, cell proliferation, and colony forming fraction in treated BC cell lines. We also found that wound-healing rate was decreased after treatment.

Conclusions: Present study uncovered a mechanism whereby EGFR inhibition overcomes the resistance of BC cells. The Erlotinib significantly interfere with survival and migration of treated BC cell lines. Taken together, targeted therapies are going to enhance the efficacy of anti-cancer treatment.