Potential value of PTEN in predicting cetuximab response in colorectal cancer: an exploratory study.

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Source

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Abstract

BACKGROUND:

The epidermal growth factor receptor (EGFR) is over-expressed in 70-75% of colorectal adenocarcinomas (CRC). The anti-EGFR monoclonal antibody cetuximab has been approved for the treatment of metastatic CRC, however tumor response to cetuximab has not been found to be associated with EGFR over-expression by immunohistochemistry (IHC). The aim of this study was to explore EGFR and the downstream effector phosphatase and tensin homologue deleted on chromosome 10 (PTEN) as potential predictors of response to cetuximab.

METHODS:

CRC patients treated with cetuximab by the Hellenic Cooperative Oncology group, whose formalin-fixed paraffin-embedded tumor tissue was available, were included. Tissue was tested for EGFR and PTEN by IHC and fluorescence in situ hybridization (FISH).

RESULTS:

Eighty-eight patients were identified and 72 were included based on the availability of tissue blocks with adequate material for analysis on them. All patients, except one, received cetuximab in combination with chemotherapy. Median follow-up was 53 months from diagnosis and 17 months from cetuximab initiation. At the time of the analysis 53% of the patients had died. Best response was complete response in one and partial response in 23 patients. In 16 patients disease stabilized. Lack of PTEN gene amplification was associated with more responses to cetuximab and longer time to progression ($p = 0.042$).

CONCLUSION:

PTEN could be one of the molecular determinants of cetuximab response. Due to the heterogeneity of the population and the retrospective nature of the study, our results are hypothesis generating and should be approached with caution. Further prospective studies are needed to validate this finding.