

**Molecular Factors and Criteria for Predicting the Response to Neoadjuvant Treatment in Patients with Esophageal Squamous Cell Carcinoma (ESCC) - responder / non-responder**

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**Abstract**

Regarding the mortality causes, esophageal squamous cell carcinoma (ESCC) is on the 7th place in the US and the 6th place in the world, with 5 year overall survival rate of 14%, which is still modest in comparison to other digestive neoplasia. Multiples strategies were involved to improve this percentage, associating surgical procedures and chemo- and radio- oncologic therapies. The distant results showed sensitive improvement, after introduction of multimodality neoadjuvant therapies.

*Material and method:* Fifty-seven patients diagnosed with ESCC were evaluated between 2006 and 2010, male preponderance (77%), average age of 55. A multimodality therapeutic protocol was used: first – radio-chemotherapy (RCT), second - surgery and/or third – chemo- or radiotherapy. Four weeks post RCT all patients were evaluated to determine the response to neoadjuvant treatment followed by surgery - esophageal resection. Histopathological (HP) and immunohistochemical (IHC) analysis of the pathological specimens were performed in order to identify the molecular predictors with responsive or non responsive character; the studied markers were p53 (Dako 1:50), Ki-67 (Biogenex, 1:20), c-erbB-2 (Dako, 1:250). Based on these results, the working model used to determine the response to neoadjuvant therapy was tumor regression grade (TRG).

*Results:* After HP and IHC examination, the patients were included in two groups: responders (tumor cells <10%) and non-responders (tumor cells > 10%). Complete neoplasia sterilization was achieved in 5 of the patients.

*Conclusions:* We are able to state that the identification of potential predictive markers along with HP and IHC results represents a great perspective alternative in the ESCC therapy outcome. The detection of molecular type aggressiveness of the neoplastic process allows therapeutic orientation or guidance to certain therapy sequences or even to specific molecular targeted treatments.

**Key words:** esophageal squamous cell carcinoma, multimodal therapy, neoadjuvant RCT + surgery, predictive / prognostic factors for neoadjuvant RCT

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