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Serum EGF in non-small cell lung cancer: The biomarker value & the role of platelets

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Background: The CIMAvax-EGF® is a promising Cuban therapeutic vaccine for advanced non-small cell lung cancer (NSCLC), targeted to the potent mitogen epidermal growth factor (EGF). Retrospective studies of serum EGF concentrations ([sEGF]) in NSCLC patients treated with this vaccine, have revealed the predictive value of the sEGF levels for this immunotherapy. However, its putative diagnostic value, although studied is not conclusive because of the lack of standardized methodologies for quantitation. This study was aimed first at the estimation of the possible diagnostic value of [sEGF], using a previously standardized quantification procedure, controlling the crucial factors that influence [sEGF].

Methods: The [sEGF] of 25 patients were determined by ELISA, before/after the first-line-therapy, in sera collected 1h and 4h after phlebotomy. The contribution of platelets was considered analyzing their counts and through the normalization of some other variables by platelets counts.

Results: The variables [EGF]1h, [EGF]4h and [EGF]4h/platelets/L were not discriminatory (AUC=0.6464, p=0.07590; AUC=0.5267, p=0.7490 and AUC=0.6125, p=0.2424, respectively). There were significant differences between patients and controls by variables r=[EGF]4h/$[EGF]_{1h}$ (AUC=0.7075, p=0.01281), d=$[EGF]_{4h}$-$[EGF]_{1h}$ (AUC=0.6962, p=0.02038), Platelets/L (AUC=0.8253, p=0.0006588), $[EGF]_{1h}$/platelets/L (AUC=0.7440, p=0.01061), and d/platelets/L (AUC=0.8653, p=0.0001487).

Conclusions: The absolute [sEGF] had no diagnostic capacity, which was better achieved by variables normalized by platelet counts. The comprehension of the role of platelets in the measured EGF levels should allow a better interpretation of the assessed values, to judge about the dependence of the tumors from EGF. This knowledge should also impact the clinical management of patients and the individualization of their therapies.

Biography

Idania González Pérez has completed her BSc in Physics from the Faculty of Physics, Moscow State University, Russia (1985-1990) and Master of Science in Physics and Mathematics from Faculty of Physics, Moscow State University, Russia. She is now involved in a PhD program at the University School of Medicine in Havana. She is a Senior Researcher at the Center for Molecular Immunology in Havana, Systems Biology Department, Biomarkers Group. She has published more than 15 papers in reputed journals and has been serving as a Reviewer in Medical Science Monitor, Journal of Hospital and Clinical Pharmacy and International Blood Research & Reviews.

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