

July 23-24, 2018
Amsterdam, NetherlandsJana Slobodnikova et al., Arch Can Res 2018, Volume: 6
DOI: 10.21767/2254-6081-C2-008

TUMOR MARKERS: QUALITY CONTROL OF THE LABORATORY ANALYSES, IMPORTANCE AND BENEFITS

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Background: Tumor markers are important tools in laboratory diagnostics of cancer diseases, which allows us for continual supervision of patients stage and its time-dynamics. Thanks to these laboratory parameters, recidiving diseases can be treated significantly earlier. In our study we evaluated routinely tested tumor markers CA125, Ca199, carcinoembryonic antigen (CEA), prostate specific antigen (PSA), alpha fetoprotein (AFP), human chorionic gonadotropin (HCG) and Ca153 with emphasis on their diagnostic value in clinical practice.

Aim: The goal of our preliminary study was to verify the informational quality of tested parameters in terms of precision, accuracy and reliability of results with the aim of the external quality control (EQC).

Material & Methods: All listed tumor markers were determined by laboratory methods based on the principle of electrochemiluminescence. The anonymous material for the analysis was provided by a supplier of the external quality control in the form of sample pairs with an undisclosed concentration of the analyte. After processing, there were obtained concentrations of particular analytes and they were sent back to the supplier of external quality control for evaluation. Acceptable outcomes were cut-off values which didn't exceed 20% of the CV of the group, to which laboratory methodologically belonged.

Results: Based on the results, it can be concluded that in the tested period, laboratory succeeded in all measured parameters, while the critical difference was not even once exceeded. This is primarily about the robustness and reliability of the methodology and laboratory analyzers. It was therefore not necessary even once implemented corrective measures that would inevitably followed the findings of non-compliance. Despite these results, it should be noted, that laboratory diagnostics of tumor markers is time-continuous stream of samples, materials and information, during which there may be in non-compliance at any time.

Conclusions: It is necessary to understand that the external quality control is continuous process of systematic activities directed to the improvement of laboratory work.

Biography

Jana Slobodnikova has completed Specialization of Radiology I and II from Charles University in Prague, Faculty of Medicine. She has completed Post-doctorate and CSc (PhD) at the Institute of Experimental Oncology, Slovak Academy of Sciences. She was an Assistant Professor at Tyrnaviensis University, Hosting Professor at St. Elizabeth High School in Bratislava. She has been teaching at several universities in Prague, Trenčín, Trnava and Bratislava. She is Author of teaching text, university textbooks, and lead workshops. She organizes international congresses and workshops. She has published more than 90 scientific papers, from then 25 papers in renowned journals and has been active as Editorial Board Member of repute in 5 scientific periodicals. She has published 3 monographies, and has founded the Section of Breast Imaging in 1996. Since 1996, she is the President of the Section of Breast Imaging of Slovak radiologic Society and Vice President of the Slovak Society of Ultrasound in Medicine. She has Membership in organizations: ECR, EUSOBI, EFSUMB, SSUM (Slovak Society of Ultrasound in Medicine) and SRS (Slovak Radiology Society).

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