



PP-145

Advancements in diagnostics & clinical cases

The biomolecular markers for the personalized prediction of the treatment effect in patients with head and neck cancer: pilot study

Zuzana Vojtěchová¹, Petr Milt¹, Martina Saláková¹, Jana Šmahelová¹, Radka Lohynská², Michal Lacek², Aleš Čoček³, Zuzana Krátká³, Ruth Tachezy¹

¹Department of Genetics and Microbiology, Faculty of Science, Biocev, Charles University, Prague, Czech Republic

²Clinic of Oncology of the 1st Faculty of Medicine Charles University and Thomayer University Hospital, Prague, Czech Republic

³Department of Otorhinolaryngology and Head and Neck Surgery, Thomayer University Hospital, Prague, Czech Republic

AIM: The clinical utility of liquid biopsies as diagnostic, predictive and prognostic biomarkers has been shown for several cancers. Our study focuses on analyzing the dynamics of HPV cell-free DNA levels during the surveillance of patients with oropharyngeal tumors to improve the management of patients. We present preliminary data on the evaluation of plasma collection methods, and their efficiency in subsequent analyses of the dynamics of HPV cfDNA level.

METHODS: Plasma was collected the day before treatment and in intervals during post-treatment follow up. Two methods of plasma collection were used. Isolation of ctDNA from plasma was performed, the quality of extracted ctDNA was evaluated, and HPV cfDNA was detected by ddPCR and NGS.

RESULTS: Fifty-two paired samples from 20 patients were analyzed. The paired profiles on the chip electrophoresis were comparable, with a greater influence of the individual patient's condition rather than the collection method or time since sampling. We observed a decreasing level of HPV cfDNA after surgery or from the initiation of treatment in long-term follow-up patients.

CONCLUSIONS: In summary, we have shown that both methods of plasma collection are usable for HPV cfDNA analysis and that the level of HPV cfDNA decreases in time from the beginning of treatment to the zero level.

SOURCES OF FUNDING: The research was funded by the Project National Institute of Virology and Bacteriology (Programme EXCELES, ID Project No. LX22NPO5103) - Funded by the European Union - Next Generation EU, and by the Ministry of Health of the Czech Republic - DRO (Thomayer University Hospital - TUH, 00064190).

Keywords: cell-free DNA, head and neck cancer, plasma

