

THE BIOMOLECULAR MARKERS FOR THE PERSONALIZED PREDICTION OF THE TREATMENT EFFECT IN PATIENTS WITH HEAD AND NECK CANCER: PILOT STUDY

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The clinical utility of liquid biopsies as diagnostic, predictive and prognostic biomarkers has been shown for several cancers. Our study analyses the dynamics of human papillomavirus (HPV) cell-free DNA (cfDNA) levels during the surveillance of patients with oropharyngeal tumours to improve patient management. Here, we present preliminary data on the evaluation of plasma collection methods, and their use in subsequent analyses of the dynamics of HPV cfDNA levels.

Plasma was collected the day before treatment and at frequent intervals during post-treatment follow-up. Two plasma collection methods were evaluated by chip electrophoresis. ctDNA was isolated from plasma and the quality of the extracted ctDNA was assessed. HPV cfDNA was amplified and tested by digital droplet PCR, which allows its absolute quantification.

Fifty-five paired samples from 20 patients were analysed. Twenty-six paired sample profiles of isolated cfDNA were compared by chip electrophoresis. The quality and quantity of HPV cfDNA varied more with the individual patient's condition than with the collection method or the time prior to sample processing. The amount of HPV cfDNA decreased after surgical treatment as well as after the start of radiotherapy.

In summary, we have confirmed the good performance of the plasma collection method, which allows easier sampling logistics for subsequent HPV cfDNA quantification. HPV cfDNA was detected in all patients and levels decreased to zero during treatment.

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