

Viral colonization in exhaled breath condensate of lung cancer patients: Possible role of EBV and CMV

Giovanna E. Carpagnano¹, Donato Lacedonia¹, Maria Iole Natalicchio², Luigi Zoppo², Valerio Saliani², Domenico Martinelli³, Raffaele Antonetti², Silvio Orlando⁴ and Maria P Foschino-Barbaro⁴

¹Institute of Respiratory Disease, University of Foggia, Italy

²III Laboratory of Analysis, Riunity Hospital Foggia, Italy

³Department of Medical Sciences, University of Foggia, Italy

⁴Department of Thoracic Surgery, Case di Cura Riunite, Italy

Today an increasing interest is being addressed to the viral aetiology of lung tumours. As a consequence, research efforts are actually being directed to the identification of the new viruses involved in lung carcinogenesis toward which the screening programs could be directed.

Aim: The aim of this study was to investigate the airways colonization by Epstein Barr virus (EBV) and Citomegalo virus (CMV) in patients affected by lung cancer using, as a respiratory non-invasive sample, the exhaled breath condensate (EBC).

Material and methods: 70 lung-cancer patients and 40 controls were enrolled. All subjects underwent bronchial brushing and EBC collection. EBV-DNA and CMV-DNA were evaluated in both samples by real-time PCR assay.

Results: We were able to detect EBV and CMV in the EBC. We observed an increase of the EBV positivity in NSCLC patients compared to controls, and of the CMV in advanced stages of lung cancer. The association of the positivity of the cytology and the CMV test (in EBC or brushing) slightly increased the sensibility of malignant diagnosis.

Conclusion: In conclusion, EBV and CMV resulted detectable in the EBC. In consideration of the potential involvement of these viruses in lung cancer, also confirmed in this study, we support future studies in this direction.

ge.carpagnano@unifg.it