Session G. Head and neck cancer

Circulating pretreatment Epstein Barr Virus DNA quantification as a prognostic factor in nasopharyngeal cancer patients in a non endemic area


1Fondazione IRCCS Istituto Nazionale dei Tumori, Milano
2Fondazione IRCCS Istituto Nazionale Tumori, Milano
3Ospedale Niguarda, Milano
4Ospedale San Raffaele, Milano

Background: The value of plasma Epstein Barr Virus (EBV) DNA viral load in nasopharyngeal cancer (NPC) patients before treatment correlates with tumor stage and outcome in endemic areas. The aim of our analysis is to explore the role of EBV DNA in the Italian non endemic setting where just one experience has been previously reported (Ferrari D et al, 2012).

Material and methods: The medical records of all the patients with positive EBV encoded RNA (EBER) NPC, treated in our institution from 2006 to 2014 with chemotherapy (CT) concurrent with radiation (RT), were retrospectively evaluated. Information about the known prognostic factors, as established in NPC endemic areas, were collected, as well as pretreatment plasma EBV DNA viral load, detected and quantified by real-time PCR.

Results: A total of 134 patients were evaluated (median age 48 years; M:F ratio 2:1; stage II 13%, III 31%, IV 56%). Neo-adjuvant CT (TPF scheme) was administered to 78% of the patients. Platinum based CT was delivered concurrently with RT. At a median follow up of 41 months, 25 patients (19%) experienced locoregional and/or distant recurrence and 70% of them died. Overall, pretreatment plasma EBV DNA was detected in 97 patients (72%), with median viral load of 544 cp/mL (range 50 - 1.5x10^5 cp/mL), and showed a significant positive correlation with T stage (p = 0.02), N3a stage (p = 0.045) and a negative correlation with previous neck surgery (p= 0.03). Progression-Free Survival (PFS) was significantly longer in patients with pretreatment negative EBV DNA value than in positive ones (56 vs 26.5 months, p = 0.014). A relationship between higher EBV DNA viral load and risk for distant metastasis was marginally noted (p = 0.06).

Conclusions: In a non endemic area, pretreatment plasma EBV DNA was detected only in 72% of the EBER positive NPC patients, lower than what reported in endemic areas (87-100%). Patients with negative pretreatment EBV DNA had a significant better prognosis in terms of PFS, while EBV DNA viral load correlated with tumor burden (T and N3a stage). The value of EBV-DNA as reliable prognostic biomarker of PFS in NPC in non-endemic areas needs to be confirmed in larger series.