P04.09. THE PROGNOSTIC POTENTIAL OF CD133 AND NESTIN IN A POPULATION-BASED COHORT OF GLIOMA PATIENTS
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INTRODUCTION: Cancer stem cell-related (CSC) markers like CD133 and nestin have been suggested as a novel type of prognostic markers in gliomas. However no single CSC-related marker is currently used in clinical decisions. The aim of this study was to investigate the prognostic potential of CD133 and nestin separately and in combination using a novel quantitative approach in a well-characterized population-based cohort of glioma patients.

METHODS: Using computer-based systematic and random sampling the expression of CD133 and nestin were investigated in paraffin sections from 239 primary gliomas (WHO grade II-IV). All patients were diagnosed between 2005 and 2009. A fluorescence staining protocol with antibodies against CD133 and nestin were used followed by automated image acquisition and processing. RESULTS: The level of nestin correlated positively with WHO grade (p < 0.001). Patients with WHO grade II tumours and a high level of nestin had a short progression-free survival (PFS) in multivariate analysis (HR 3.42, 95% CI 1.18-9.94, p = 0.02) including age, performance status and IDH1 status. No association between nestin and overall survival (OS) were observed in patients with WHO grade III (HR 2.2, 95% CI 0.69-6.93, p = 0.18) or IV tumours (HR 1.12, 95% CI 0.82-1.52, p = 0.48). The expression of CD133 did not correlate with WHO grade (p = 0.17), and there was no association with overall survival (OS) or progression-free survival (PFS). High levels of co-localization were associated with poor PFS in patients with WHO grade II tumours (HR 3.09, 95% CI 1.05-9.11, p = 0.04), but not in patients with WHO grade III (HR 1.27, 95% CI 0.43-3.98, p = 0.68) and IV tumours (HR 0.97, 95% CI 0.66-1.43, p = 0.88). Co-localization was not associated with overall survival. CONCLUSION: CD133 was not an independent prognostic factor, but a high level of nestin was associated with poor PFS in patients with WHO grade II tumours. High levels of co-localization were associated with poor PFS in patients with WHO grade II tumours but did not provide independent prognostic value. The combination of double-immunofluorescence and automated analysis seems to be a feasible and reproducible approach for future investigation of potential prognostic biomarkers.