Association Between RDW And Survival In Patients With Glioblastoma

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Purpose
Several haematological markers have been studied as prognostic determinants in patients with neoplasia. Recently, the Red Cell Distribution Width (RDW) was described as a possible indicator, although its study is still scarce in patients with glioblastoma. Our purpose was to assess RDW as a prognostic factor of survival in glioblastoma patients.

Materials and Methods
A cohort of patients with glioblastoma submitted to surgical resection was analysed retrospectively between 2005 and 2013. Pre and post-surgery RDW were registered before the beginning of chemotherapy. The association with progression-free survival (PFS) and global survival (GS) was made through the analysis of Cox survival and regression curves.

Results
140 patients were assessed, 98 men and 42 women, with average ages of 62.9±10.00 years old, GS of 19.4±14.34 and PFS of 9.4±8.73 months. The average pre-surgery RDW was 13.0±0.72% and post-surgery RDW was 14.1±1.33%. The study has shown that patients with pre-surgery RDW>14.5% had a lower GS (7, CI 0.0-15.8 months) when compared to RDW≤14.5% (16, CI 14.8-17.2 months). Patients with post-surgery RDW>15% have presented a lower PFS (5, CI 3.6-6.4 months) compared to RDW≤15% (8, CI 5.9-10.1 months). The univariate analysis has shown that the pre-surgery RDW is associated to a GS [HR 6.070 (CI 2.122-17.361), p=0.001] and a PFS [HR 3.242 (CI 1.165-9.026), p=0.024]; also, the association with the GS remains in the multivariate analysis when adjusted to confounding variables [HR 5.679 (CI 1.910-16.886), p=0.002].

Conclusion
Results support the pre-surgery RDW as an independent prognostic factor for GS in patients with glioblastoma.