The degree of anemia has an impact on survival in myelodysplastic syndrome patients classified with WPSS

Recently, Malcovati and colleagues[1] integrated the degree of anemia into WPSS stratification and found that this refined model (rWPSS) is able to identify five risk groups of myelodysplastic syndrome (MDS) patients with different overall survival (OS). The new score was tested in a German validation cohort, different to the learning cohort observed in Pavia, due to the low number of patients classified as low risk (RCUD, RARS and del5q). We reclassified our consecutive series of MDS patients diagnosed and followed at a single institution: 670 patients were diagnosed as having MDS between January 1992 and December 2006. Statistical analysis was carried out using SPSS software. Survival was defined as the interval from the time of diagnosis to last contact or death from any cause. WPSS application was possible in 460 of 670 patients who entered this analysis due to the availability of all data. Median age of the whole population was 70 years (range 21-88), with a prevalence of male sex (m/f ratio 1.62). Considering the severity of anemia as reported by Malcovati *et al.*,[1] with the rWPSS we identified 51 patients (11%) as very low risk, 103 patients (22%) as low risk, 116 patients (25%) as intermediate risk, 167 patients (36%) as high risk and 23 patients (5%) as very high risk. This stratification allowed us to divide patients into different distinct groups with a significant difference in OS between them: 42.6 months for very low risk, 39.4 months for low risk, 27 months for intermediate risk, 17.6 months for high risk and 11 months for very high risk (P=0.0001). Application of WPSS stratification[2] in our cohort revealed a similar median OS for very low and low risk (43.8 and 36 months, respectively) and intermediate risk (30 months) but not for high risk (25 months) or for very high risk (22 months). Thus, in our hands, the rWPSS was able to better identify high-risk MDS categories compared to WPSS. We also observed the correlation between the new proposed refined score and the incidence of leukemic transformation: again the score was able to identify differences in the rate of evolution between very low (9%) and low (11%) risk *versus* intermediate (21%), high (33%) and very high (83%) risk (P=0.002). Similar differences were identified with the application of WPSS stratification: 10% in very low and 14% in low risk *versus* 19% in intermediate, 30% in high risk and 68% in very high risk patients (P=0.001). As previously described, we found the presence of one or more comorbidities in 94% of the patients examined,[3] with cardiac disorders being the most common comorbidity observed (40% of patients). Anemia had a definite impact on non-leukemic death rate in our series of patients, in particular in low risk MDS. In fact, according to rWPSS score stratification, we found a non-leukemic death rate of 33% in very low risk, 25% in low risk, 14% in intermediate risk, 7% in high risk and 4% in very high-risk patients. Conversely, in our series of patients, WPSS was not able to identify non-leukemic death incidence with the same accuracy. We tested the new score in a large cohort of MDS patients consecutively diagnosed and conservatively treated, and followed within a single institution. In contrast to the validation cohort of the original study, which was extrapolated from a registry, our series of patients represent a more realistic validation cohort with 68% of cytogenetically evaluable cases. About 60% of this validation cohort was represented by low risk MDS according to WHO classification, similar to the learning cohort. We found that the new refined WPSS had greater strength in determining OS, especially in high-risk patients, but also had a potential to better define leukemic risk and non-leukemic death rate at baseline in low and high-risk patients. Significantly, our results showed that the negative impact of anemia, and the consequently negative impact of transfusion dependency and iron overload, should be considered also in the planning of treatment strategies in high-risk patients.

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