Edmonton symptom assessment system Global Distress Score and overall survival in acute leukaemia

A large number of prognostic oncology studies with patient reported outcomes (PROs) was published in recent years, but only a few of them included patients with haematologic malignancies.[1 2] Around 90% of these studies found at least 1 PRO domain independently predicting overall survival (OS), while controlling for key clinical and laboratory data. The EORTC QLQ-C30 (Core Quality of Life questionnaire-C30) questionnaire was the most frequently used PRO measure in these studies, and its physical functioning scale was the most frequently observed independent prognostic PRO domain.[1 2] The Edmonton Symptom Assessment System (ESAS) is a PRO measure assessing 10 key symptoms routinely used in clinical cancer care. It takes about 1 min to complete, is translated to multiple languages and is free.[3] The Global Distress Score (GDS) is a validated subscale including the first 9 items of this measure and it has recently been shown to provide prognostic information for OS in 333 patients with metastatic cancer.[4]

We investigated, the association between the GDS (of the ESAS) and OS in a well characterised cohort of 77 consecutive patients aged ≥60 years, with newly diagnosed acute myeloid (AML) and acute lymphoblastic leukaemia (ALL).

The continuous variables were described as the mean±SD or median and IQR, whereas the categorical variables as the absolute and percentage numbers. Two analyses were performed to assess the relationship between the GDS score and OS, defined as the time from diagnosis to death. The first analysis assessed the linear relationship between GDS and OS and was carried out by using a Cox regression model with GDS score as an independent variable. The second analysis compared two groups of patients, defined based on the observed upper quartile of GDS score: (1) high GDS score if ≥33 and (2) low GDS score if <33. Individuals who were alive at the time of data extraction were treated as having a censored follow-up time. The OS curves and the median OS time were calculated with the Kaplan-Meier method. The results were reported as the HR and uncertainty in results was expressed with the 95% CI. The HR for the first analysis considered a 10-points linear increment in GDS score, whereas the HR for the second analysis compared the high GDS score group versus the low GDS score group. Unadjusted and confounder-adjusted results were reported. The adjusted analyses considered the following as further independent variables: age at diagnosis (years), gender (male and female), Eastern Cooperative Oncology Group Eastern Cooperative Oncology Group score and type of leukaemia (AML with high, intermediate, low and unknown ELN risk, respectively; ALL). To determine a possible correlation between GDS score and initial treatment received, which could have represented a possible confounding factor, we performed a χ^2 test and Fisher's exact test between low or high GDS score group and either intensive or not intensive treatment group. Not intensive chemotherapy consisted of either hypomethylating agents or tyrosine kinase inhibitor or low-dose chemotherapy or palliative care only. Statistical significance was set at $p<0.05$. Analyses were performed out with R V.3.6.3 statistical software (The R Foundation for Statistical Computing, Wien). The study has been approved by the local ethics committee (protocol no. 137–2022).

Seventy-seven patients were included in the analysis. The median age was 69 (66–73) years and 55.8% of patients were men. Demographics and characteristics of patient population were reported in online supplemental table 1. The median GDS score was 17 (IQR from 8 to 33) and 28.6% patients had high GDS score (ie, greater, or equal than 33). During the study period, 60 (77.9%) patients died with a median OS time equal to 13.7 months (95% CI 10.4 to 17.4). No correlation between GDS score and initial treatment received was found (p=0725). The unadjusted GDS score had a significant linear association with OS (HR for 10-units increment=1.21, 95% CI 1.04 to 1.41, p=0.013). Furthermore, the high GDS score group showed an increased risk of death as compared with the low GDS score group (HR=1.89, 95% CI 1.08 to 3.31, p=0.026) (online supplemental table 2). These results were confirmed in the adjusted analyses. The adjusted HR for a 10-units increment in GDS was 1.19 (95% CI 1.01 to 1.41, p=0.042), whereas the adjusted HR for comparing the high GDS score group versus the low GDS score group was 2.05 (95% CI 1.06 to 3.95, p=0.033) (online supplemental table 2). Figure 1 shows the OS curves for the two groups based on GDS upper quartile. The median OS time was equal to 10.0 months (95% CI 7.0 to 18.1) in the high GDS score group and to 16.0 months (95% CI 11.0 to 24.0) in the high GDS score group.

Our findings show, for the first time, that a higher ESAS GDS score was associated with a statistically significant decrease in OS of patients with acute leukaemia. This finding has important implication, as it emphasises the clinical utility of using the ESAS in real-life practice to help predicting survival in the challenging setting of acute leukaemia. Indeed, this easy to use and pragmatic PRO measure (which can be completed by patients in just 1 min)[3] could be implemented in a more standardised way during the diagnostic workup of acute leukaemia to enhance survival prediction and to more accurately implement palliative care strategies to improve patient care.

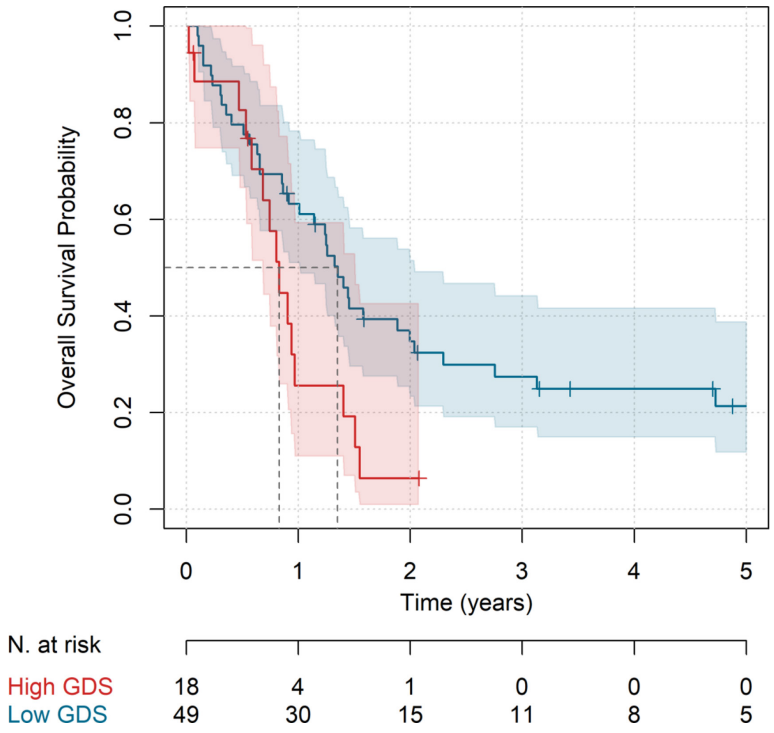

Figure 1 Overall survival curves by Global Distress Score (GDS) score (high vs low).

The advances in digital health technology have facilitated the inclusion of PROs also into real-life haematology practice[5] and electronic administration of PRO instruments such as the ESAS in certain routine practice settings should be highly considered to become standard practice, likewise the collection of other laboratory or clinical exams. Confirmation of our findings in future prospective studies of acute leukaemia patients is warranted.

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Contributors MM and ML have full access to all of the data used in the study and take the responsibility for the integrity of the data and the accuracy of the data analysis. MM, FB, EBo, SC, FF, FB, SB, GL, RD, CAP, FF, EBr, ML, EBa, LP have contributed to the acquisition, analysis, and interpretation of data. MM, FB, EBo, SF, FF, FB, SB, GL RD, CAP, FF, EBr, ML, EBa, LP have contributed on the manuscript draft, final version and approved the submitted manuscript. FB and RD performed statistical analysis.

Funding This study was funded by Programma di ricerca Regione Emilia Romagna-Università, Ricerca per il Governo Clinico, 2010-2012 (3b211-19 to ML)

Competing interests None declared.

Patient consent for publication Consent obtained directly from patient(s)

Ethics approval The study was approved by the Modena and Reggio Emilia Ethical Committee, Modena, Italy (Number 137-2022). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; internally peer reviewed.

► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/spcare-2022-003838).

MM, FB, EB, CAP, FE, EB, ML, EB and LP contributed equally.

To cite Morselli M, Banchelli F, Borelli E, *et al*. *BMJ Supportive & Palliative Care* 2023;**13**:e746–e748.

Received 27 June 2022
Accepted 30 June 2022
Published Online First 18 July 2022

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