soho2023
ELEVENTH ANNUAL MEETING

Additional risk factors of severe bleeding in patients with newly diagnosed acute myeloid leukemia (AML): Ukrainian prospective study in a real-life cohort

Z. Stupakova[1], I. Dyagil[1], Z. Martina[1], A Sergeieva[1], O. Karnabeda[2], U. Melnyk[3], O. Novosad[4], S. Rushkovsky[5]

[1]National Research Center for Radiation Medicine of NAMS of Ukraine, Kyiv, Ukraine
[2] Bohomolets National Medical University, Kyiv, Ukraine
[3]Kyiv City Clinical Hospital №9, Kyiv, Ukraine
[4]EOC Istituto Oncologico della Svizzera Italiana, Bellinzona, Switzerland
[5]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

NRCRM State Institution "National Research Center for Radiation Medicine of NAMS of Ukraine"

INTRODUCTION

Hemorrhages in newly diagnosed AML significantly impact overall survival and outcome of patients. Bleeding events usually associated with thrombocytopenia, infections, concomitant disorders and coagulation abnormalities. Von Willebrand factor could well be considered as a link in hemorrhagic events because of its unique features in primary hemostasis as well as further role in factor VIII binding and stabilizing role. Exploring of new factors which can lead to severe bleeding remains relevant and attractive.

AIM

The primary endpoints were a qualitative and quantitative functions of plasma von Willebrand factor (vWF): vWF:ristocetin cofactor [vWF:RCo]), (vWF:antigen [vWF:Ag]), factor VIII activity to vWF(vWF:FVIII), FVIII activity (FVIII), platelets count as additional bleeding risk factors in newly diagnosed AML patients.

METHOD

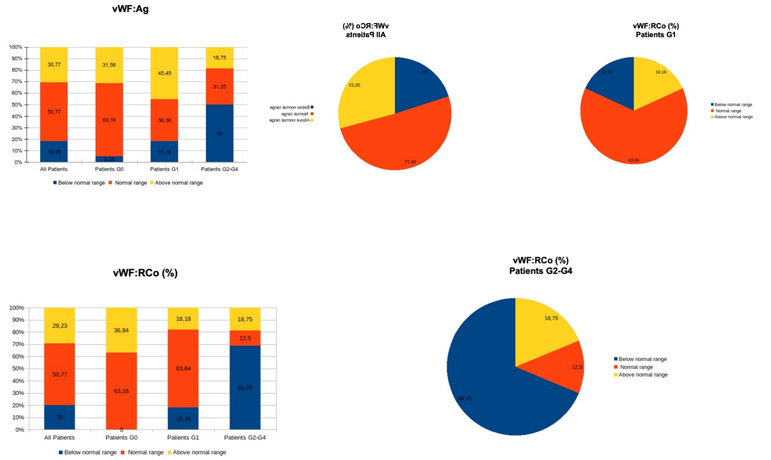
- 65 patients with newly diagnosed AML (excluded APL) were included in the study group (30 males and 35 females; median age: 59 years).
- The diagnosis of AML established by FAB and WHO classification systems and the plasma samples were collected before the beginning of induction therapy. The grade (G) of bleeding events was assessed according to Modified WHO Bleeding Scale (WHO BS).
- Levels of vWF:Ag and vWF:RCo tested on automated latex particle-enhanced immunoassay ACL Elite Pro and ACL TOP 300 (Instrumentation Laboratory). vWF:FVIII and FVIII were measured using a clotting assay with factors deficient plasma by fully automated coagulometer ACL Elite Pro (Instrumentation Laboratory).

RESULTS

Hemorrhage (G1-4) occur in 43 % of patients in the study group before or during induction therapy. The mean of platelets count in the study group was 56,69±7,07. We investigated the number of platelets count and compared these data between patients with different grades of bleeding events. Thus, the lowest rates were observed in G2-G4 group (mean 59,69±20,88, median 34,5) but the statistical significance have not been reached yet.

The duration of bleeding episodes did not depend on platelet counts between patients with different grades of hemorrhage, however bleeding duration more than 5 days was associated with a reduction in vWF:RCo below normal ranges ($p<0,05$) and need further in-depth investigation. The most frequent bleeding events in patients with reduced vWF:RCo (21,5%) were G2 (9/14) 64% and G4 (3/14) 21%. Therefore, we found a statistically significant association between a decreased levels of vWF:RCo below normal ranges (median 37,65%) and the occurrence of severe bleeding episodes (G2-G4) in patients with AML ($p=0,0001$).

vWF:Ag below normal ranges had been observed in 15% of patients with AML and was associated with the occurrence of severe haemorrhage compared with the patients (G0) who had normal vWF:Ag ($p<0.05$).



CONCLUSIONS

Implementation of new indicators will extend further investigation of primary haemostasis and comprehensive assessment in combination of different factors of severe bleeding in AML in more depth.

REFERENCES

[1] J. Versluis, M. Pandey, Y. Flamand et al. Prediction of life-threatening and disabling bleeding in patients with AML receiving intensive induction chemotherapy. Blood Adv. (2022) 6 (9): 2835–2846.

CONTACT INFORMATION

dochemzs@gmail.com

Zinaida Stupakova