Received: 21 November 2020 | Revised: 5 March 2021 | Accepted: 22 March 2021
DOI: 10.1111/jcmm.16513

ORIGINAL ARTICLE

WILEY

Azacytidine plus olaparib for relapsed acute myeloid leukaemia, ineligible for intensive chemotherapy, diagnosed with a synchronous malignancy

Sabina Iluta[1,2,3] | Sergiu Pasca[1,2,3] | Grigore Gafencu[1,4] | Ancuta Jurj[5] | Andreea Terec[1] | Patric Teodorescu[1,2,6] | Cristina Selicean[2] | Ciprian Jitaru[2] | Alexandra Preda[1,2] | Diana Cenariu[3] | Catalin Constantinescu[1,2] | Maria Iordache[5] | Bogdan Tigu[3] | Raluca Munteanu[3] | Richard Feder[3] | Delia Dima[2] | Mihnea Zdrenghea[1,2] | Diana Gulei[3] | Tudor-Eliade Ciuleanu[7,8] | Ciprian Tomuleasa[1,2,3,9]

[1]Department of Hematology, Iuliu Hatieganu University of Medicine and Pharmacy Cluj Napoca, Cluj Napoca, Romania
[2]Department of Hematology, Ion Chiricuta Clinical Cancer Center Cluj Napoca, Cluj Napoca, Romania
[3]Medfuture Research Center for Advanced Medicine, Iuliu Hatieganu University of Medicine and Pharmacy Cluj Napoca, Cluj Napoca, Romania
[4]MRC Molecular Haematology Unit • The MRC Weatherall Institute of Molecular Medicine, University of Oxford, Oxford, UK
[5]Research Center for Functional Genomics and Translational Medicine, Iuliu Hatieganu University of Medicine and Pharmacy Cluj Napoca, Cluj Napoca, Romania
[6]Department of Leukemia, The Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University School of Medicine, Baltimore, US
[7]Department of Hematology, Victor Babes University of Medicine and Pharmacy, Timisoara, Romania
[8]Department of Medical Oncology, Iuliu Hatieganu University of Medicine and Pharmacy Cluj Napoca, Cluj Napoca, Romania
[9]Department of Chemotherapy, Ion Chiricuta Clinical Cancer Center, Cluj Napoca, Romania

Correspondence
Ciprian Tomuleasa, Department of Hematology, Iuliu Hatieganu University of Medicine and Pharmacy Cluj Napoca, Cluj Napoca 400124, Romania.
Email: ciprian.tomuleasa@umfcluj.ro

Funding information
Sabina Iluta was funded by an internal grant of the Iuliu Hatieganu University School of Doctoral Studies (PCD 2019•2022). This work was also supported by grants from the Romanian Ministry of Research and Innovation; Project No. PN•III•P4•ID•PCCF•2016•0112 within PNCDI III; Young Research Teams 2020•2022 (Grant No. PN•III•P1•1.1•TE•2019•0271, grant director Ciprian Tomuleasa); PN•III•P4•ID•PCE•2020•1118 within PNCDI IV, Projects for Exploratory Medicine (grant director Gabriel Ghiaur); PN•III•CEI•BIM•PBE•2020•0016 within PNCDI I • collaboration between Romania and Belgium (Wallonia), contract

Abstract

Patients with relapsed/refractory acute myeloid leukaemia (AML), ineligible for intensive chemotherapy and allogeneic stem cell transplantation, have a dismal prognosis. For such cases, hypomethylating agents are a viable alternative, but with limited success. Combination chemotherapy using a hypomethylating agent plus another drug would potentially bring forward new alternatives. In the present manuscript, we present the cell and molecular background for a clinical scenario of a 44-year-old patient, diagnosed with high-grade serous ovarian carcinoma, diagnosed, and treated with a synchronous AML. Once the ovarian carcinoma relapsed, maintenance treatment with olaparib was initiated. Concomitantly, the bone marrow aspirate showed 30% myeloid blasts, consistent with a relapse of the underlying haematological disease. Azacytidine 75 mg/m^2 treatment was started for seven days. The patient was administered two regimens of azacytidine monotherapy, additional to the olaparib-based maintenance therapy. After the second treatment, the patient presented with leucocytosis and 94% myeloid blasts on the bone marrow smear. Later, the patient