

A phase II trial of Gemcitabine, Ifosfamide, Dexamethasone, and Oxaliplatin (GIDOX) for patients with refractory or relapsed Non-Hodgkin's Lymphoma

Byeong-Bae Park¹, Won Seog Kim², Hyeon Seok Eom³, Jin Seok Kim⁴, Suk Joong Oh⁵, In Gyu Hwang⁶,
Cheolwon Suh⁷

¹Department of Internal Medicine, Hanyang University College of Medicine, Korea, ²Division of Hematology/Oncology, Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea, ³Hematology/Oncology Clinic, Research Institute and Hospital, National Cancer Center, Korea, ⁴Division of Hematology, Department of Internal Medicine, Yonsei University College of Medicine, Korea, ⁵Department of Internal Medicine, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Korea, ⁶Division of Hematology-Oncology, Department of Internal Medicine, Chung-Ang University, School of Medicine, Korea, ⁷Department of Internal Medicine, Asan Medical Center, University of Ulsan College of Medicine, Korea

Background: Gemcitabine combined with cisplatin has been known as an effective regimen for lymphoma treatment in salvage setting. However, this regimen has the modest response with severe nephrotoxicity and neurotoxicity, especially to heavily treated patients. We investigated the response rates and toxicities of gemcitabine, ifosfamide, dexamethasone, and oxaliplatin (GIDOX) for relapsed or refractory aggressive B-cell non-Hodgkin lymphoma (NHL), looking for the more effective and less toxic therapy.

Methods: Patients with recurrent or refractory diffuse large B-cell lymphoma or mantle cell lymphoma, measurable disease, and more than one previous chemotherapy regimen were eligible. Treatment consisted of gemcitabine 1000 mg/m² intravenously (IV) on Days 1 and 8, ifosfamide 2000 mg/m² IV on Day 1, dexamethasone 40 mg orally on Days 1-4, and oxaliplatin 130mg/m² IV on Day 2, every 21 days. The primary end point was a response rate after three cycles. Patients could then proceed to high-dose chemotherapy followed by autologous stem cell transplantation (HDC-ASCT) or receive up to six treatment cycles.

Results: Twenty-seven eligible patients were evaluable for toxicity and response. The median age of the patients was 54 years (range, 18-75 years) and most had diffuse large-cell lymphoma. After 3 cycles, there were 4 complete responses (CR; 15%) and 10 partial responses (PR; 37%). There was an overall response rate (RR) of 52%. The RR after completion of all protocol chemotherapy including SCT was 44% (10 CR, 2 PR). In total 88 cycles of GIDOX, grade 3 and 4 neutropenia occurred in 33% and 16% of cycles, respectively. Grade 3 and 4 thrombocytopenia occurred in 14% and 16% of cycles, respectively. Two patients (2%) experienced febrile neutropenia. Seven patients (26%) proceeded to HDC-ASCT.

Conclusions: GIDOX is an active salvage regimen in aggressive B-cell NHL and can be administered with acceptable toxicity.