Use of PEG G-CSF is associated with decreased myelotoxicity in dexrazoxane-used aggressive Non-Hodgkin Lymphoma patietns

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BACKGROUND

- Dexrazoxane (DXZ) is indicated as a cardioprotective agent for elderly aggressive lymphoma receiving the anthracycline, such as doxorubicin.
- Several studies reported an apparent increase in the severity of myelosuppression when dexrazoxane was used.
- Prophylactic use of pegylated granulocyte colony stimulating factor (PEG G-CSF) is known to reduce the incidence of both neutropenia and febrile neutropenia.

OBJECTIVES

- In this study, we conducted a retrospective study to evaluate prophylactic effect of PEG G-CSF in elderly aggressive lymphoma treated with CHOP-based regimen and cardioprotective dexrazoxane

MATERIALS & METHODS

#. ***Subjects***

- We retrospectively analyzed hematological toxicities data from 263 consecutive aggressive lymphoma patietns who received a CHOP-based regimen between February 2010 and December 2021.
- Of these, 68 received dexrazoxane concurrently with the CHOP-based treatment.

#. ***Study Design***

- Definition of event: death, grade IV neutropenia, febrile neutropenia, cardiac event, such as myocardiac infarction, arrhythmia, angina
- Overall survival and event free survival with probabilities: Kaplan-Meier method
- The differences between incidence of any of the explored outcomes were assessed according to the Fisher exact test.

CONCLUSIONS

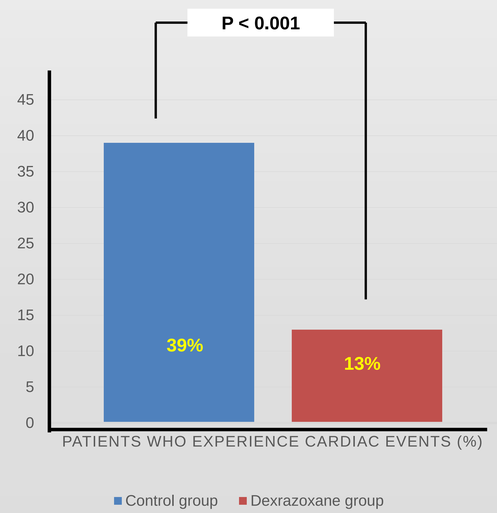
- Adding dexarazoxane to CHOP-based therapy in elderly aggressive lymphoma patients leads to higher rates of bone marrow suppression in neutropenia as well as to more frequent events of febrile neutropenia.
- However, PEG G-CSF prophylaxis was effective in reducing the incidence of neutropenia and febrile neutropenia in patients with dexrazoxane prophylaxis

RESULTS

Patient characteristics

Characteristics		Control group (n=49)	Dexrazoxane group (n=19)
Age, year Median (range)		71 (70-84)	77 (70-87)
Sex of Male, n (%)		23 (46.9)	8 (42.1)
ECOG PS, n (%)			
	0	24 (48.9)	8 (42.1)
	1	22 (44.9)	10 (52.6)
	2	3 (6.1)	1 (5.3)
Diagnosis of lymphoma, n (%)			
	Diffuse large B-cell	38 (77.6)	14 (73.7)
	Peripheral T-cell	6 (12.2)	3 (15.8)
	Mantle cell	2 (4.1)	1 (5.3)
	Follicular Grade IIIB	3 (6.1)	1 (5.3)
Stage, n (%)			
	I	11 (22.4)	4 (21.1)
	II	7 (14.3)	3 (15.8)
	III	24 (48.9)	9 (47.4)
	IV	7 (14.2)	3 (15.8)
IPI risk group, n (%)			
	Low	10 (20.4)	4 (21.1)
	Intermediate-1	15 (30.6)	6 (31.6)
	Intermediate-2	22 (44.9)	8 (42.1)
	High	2 (4.1)	1 (5.3)
Bone marrow involvement		4 (8.2)	3 (15.8)
Chemotherapy			
	RCHOP	41 (83.7)	15 (78.9)
	CHOP	8 (16.3)	4 (21.1)
Numbers of chemotherapy			
	≤ 6	44 (89.8)	16 (84.2)
	> 6	5 (10.2)	3 (15.8)
Dose reduction		49 (100)	19 (100)
	≤ 20%	11 (22.5)	3 (15.8)
	25%	24 (48.9)	12 (63.2)
	≥ 30% to < 40%	11 (22.4)	3 (15.8)
	≥ 40%	3 (6.1)	1 (5.3)

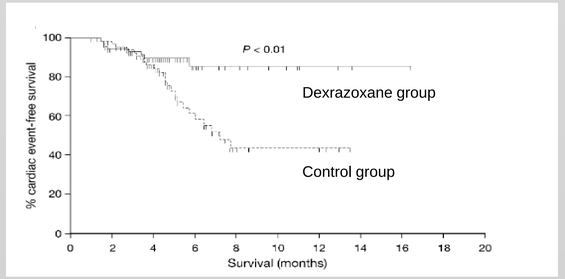
Incidence of cardiac events



Incidence of Hematologic Toxicities

	Control group (n=49)	Dexrazoxane group (n=19)
Treatment related mortality, n (%)	13 (26.5)	3 (15.7)
Grade III/IV neutropenia	11 (22.4)	6 (31.5)
Febrile neutropenia	10 (20.4)	7 (36.8)
Overall incidence of febrile neutropenia: 8.0% (32/424 cycles)		
Multiple episodes of febrile neutropenia: 14 (20.6%)		
First episode of febrile neutropenia incidence within 2 cycles: 13 (78.9%)		

Kaplan-Meier Curves of Cardiac event-free survival



Incidence of Hematologic Toxicities

	PEG G-CSF (n=8)	G-CSF (n=11)
Grade III/IV leukopenia	2 (25.0)	7 (63.6)
Grade III/IV neutropenia	1 (12.5)	7 (63.6)
Febrile neutropenia	1 (12.5)	4 (36.4)

Figure 1. Kaplan-Meier curve of cardiac event free survival (EFS) comparing dexrazoxane use in patients who received CHOP-based chemotherapy.