Comprehensive geriatric assessment (CGA) for the elderly diffuse large B cell lymphoma (DLBCL)

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Introduction

In Japan, cancer incidence and mortality rate are increasing rapidly because of the elderly population is increasing. When chemotherapy is given to elderly patients (pts) with cancer, it is often difficult to determine the indication, regimen and doses of chemotherapy especially for pts with a decrease in physical and mental function. In hematological malignancy, diffuse large B cell lymphoma (DLBCL) is a potentially curable disease even in the elderly if chemotherapy is given to them with an appropriate dose intensity. It is reported that Comprehensive Geriatric Assessment (CGA) is an useful tool to support treatment decisions and prediction of prognosis. Therefore, we conducted multicenter collaborative research on whether or not CGA could predict adverse events of elderly DLBCL pts who were to receive chemotherapy.

Methods

Patients over 65 years who were newly diagnosed as histologically-confirmed DLBCL were eligible for this study.
We carried out CGA on all registered patients. After that R-CHOP or less toxic regimen was selected and carried out according to the judgment of the attending physician. The content of CGA evaluated psycological status, activity of daily living (ADL), instrumental ADL (IADL), nutritional status, comorbidities and cognitive function (Table 1). Primary endpoint of this study was to evaluate the relationship between CGA results and severe adverse events. Associations between each element of CGA and adverse events were evaluated by Fisher's exact test. The multiple logistic regression analyses were used to evaluate the influence of CGA elements on adverse events, and the stepwise method was used for variable selection.

Table 1 Comprehensive Geriatric Assessment

Function	Tool of evaluation	Definition
Psychological status	Geriatric depression scale 1)	>10 depressive
ADL	Barthel Index 2)	<10 dependent
IADL (InstrumentalADL)	Lawton and Brody 3)	<5 dependent
Nutritional status	Mini Nutritional Assessment 4)	<17 poor
Comorbidities	Charlson comorbidity Index 5)	≧5 present
Cognitive function	HDS-R 6)	≦20 impaired

Results

Table 2 Patient Characteristics

		Total 78
Age (median 79)	65-79	43(55%)
	80≦	35(45%)
Sex	Male	41(53%)
	Female	37(47%)
PS	0-1	69(88%)
	2	8(10%)
	3	1(1%)
	4	0
Stage	I - II	40(51%)
	III - IV	38(49%)
B symptom	No	62(79%)
	Yes	16(21%)
IPI	L & L-I	44(56%)
	H-I & H	34(44%)

Table 3 Treatment regimens

	Regimens	Number
CHOP-like	R-CHOP	54(69%)
	R-CHOP+RTx	7(9%)
	R-THP-COP	3(4%)
	R-EPOCH	3(4%)
	R-CHOEP	1(1%)
	CHOP	1(1%)
others	R-ECOP	2(3%)
	R-mini-CHP	3(4%)
	R-MST16+VP16	4(5%)

Table 4 Number of dose reduction

CHOP-like regimen	43/69(62%)
Median dose intensity	80.4%(50-100)

86 pts were registered from September 2013 to February 2016, 78 pts could be evaluated. Median age was 79 years (65-89), IPI-L and LI were 44, IPI-H and HI were 34. 69 pts were treated with CHOP-like regimen, 9 were treated with other low-toxicity regimens. Dose reduction was performed in 42 pts (61%). The treatment response was CR/PR/PD in 58/7/10 pts. ADL and IADL were poor in 21 and 11, and Charlson score≥5 points was seen in 11 pts. In multivariate analysis results, abnormal IADL was associated with G3/4 leukopenia and anemia, and the presence of comorbidities was significantly associated with G3/4 non-hematological toxicities (Table 5).

Conclusions

Hematologic toxicity is associated with IADL and cognitive dysfunction in univariate analysis, and IADL remains significant by multivariate analysis. Non-hematologic toxicity has a significant association with the comorbidity index. The present study showed that CGA is useful as a predictive tool to detect severe adverse events in pts with elderly DLBCL who are to receive chemotherapy.

Table 5 Correlation between CGA and adverse events

		N	G3/4 Leukopenia univariate	G3/4 Leukopenia multivariate	G3/4 Neutropenia univariate	G3/4 Anemia univariate	G3/4 Anemia multivariate	G3/4 Thrombocytopenia univariate	G3/4 Non-Hematological Toxicities univariate	G3/4 Non-Hematological Toxicities multivariate	Febrile Neutropenia univariate
Psychological status	normal	71	48 (67.6)		54 (76.1)	17 (23.9)		10 (14.1)	25 (35.2)		17 (23.9)
	depressive	7	5 (71.4)		6 (85.7)	3 (42.9)		2 (28.6)	3 (42.9)		3 (42.9)
	P		P=1.000		P=1.000	P=0.364		P=0.293	P=0.697		P=0.364
ADL	normal	57	35 (61.4)		42 (73.7)	14 (24.6)		9 (15.8)	18 (31.6)		18 (31.6)
	dependent	21	18 (85.7)		18 (85.7)	6 (28.6)		3 (14.3)	10 (47.6)		2 (9.5)
	P		P=0.056		P=0.368	P=0.773		P=1.000	P=0.287		P=0.077
IADL (<5)	normal	67	42 (62.7)	0.63	49 (73.1)	14 (20.9)	0.67	10 (14.9)	23 (34.3)		17 (25.4)
	dependent	11	11 (100.0)	(0.43-0.92)	11 (100.0)	6 (54.5)	(0.50-0.90)	2 (18.2)	5 (45.5)		3 (27.3)
	P		P=0.013	P=0.017	P=0.059	P=0.028	P=0.008	P=0.675	P=0.511		P=1.000
Nutritional Status (<17)	normal	66	43 (65.2)		49 (74.2)	15 (22.7)		9 (13.6)	24 (36.4)		15 (22.7)
	poor	10	8 (80.0)		9 (90.0)	3 (30.0)		2 (20.0)	3 (30.0)		3 (30.0)
	P		P=0.482		P=0.436	P=0.693		P=0.632	P=1.000		P=0.693
Comorbidity (≧5)	absent	66	45 (68.2)		52 (78.8)	16 (24.2)		10 (15.2)	18 (27.3)	2.17	17 (25.8)
	present	12	8 (66.7)		8 (66.7)	4 (33.3)		2 (16.7)	10 (83.3)	(1.37-3.43)	3 (25.0)
	P		P=1.000		P=0.457	P=0.492		P=1.000	P<0.001	P=0.001	P=1.000
Cognitive function	normal	70	45 (64.3)		52 (74.3)	15 (21.4)		10 (14.3)	26 (37.1)		17 (24.3)
	impaired	8	8 (100.0)		8 (100.0)	5 (62.5)		2 (25.0)	2 (25.0)		3 (37.5)
	P		P=0.049		P=0.187	P=0.023		P=0.601	P=0.704		P=0.416
Performance Status	normal	69	45 (65.2)		52 (75.3)	18 (26.1)		10 (14.5)	23 (33.3)		17 (24.6)
	impaired	9	8 (88.9)		8 (88.9)	2 (22.2)		2(22.2)	5 (55.6)		3(33.3)
	P		P=0.258		P=0.676	P=1.000		P=0.622	P=0.270		P=0.687

References

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