

Background

- The incidence of Non Hodgkin Lymphoma (NHL) in patients older than 70 years is increasing during the last decade.
- Geriatric assessment objectives that older adults with NHL vary considerably in terms of performance status, comorbidities and functional reserve.
- The usual chemosensitivity of B NHL leads to prescription of an aggressive anthracycline chemotherapy regimen with rituximab.
- Comprehensive geriatric assessment is the best way to identify the functional risks and disabilities of older patients with the aim of providing care and organizing longer-term follow-up.
- In some cancers M. Extermann identifies by the CRASH score the individual risk of severe toxicity from chemotherapy (1).
- The objective of this study was to establish the predictive value and the interest of the CRASH score in a non selective French population with NHL.

Methods

- We performed a retrospective, multicentric study on consecutive NHL patients treated by chemotherapy from June 2010 to March 2013 conducted in a regional network HEMATOLIM.
- Inclusion criteria
 - 70 years old and over
 - Histologically proved B NHL according to the guidelines of the WHO
 - Geriatric assessment according to the SIOG recommendations for CGA
 - Available clinical and biological data
- CRASH score is evaluated before chemotherapy.
- CRASH points for toxicity of chemotherapy regimen were established using the chemotox table values, regimens not listed were scored by analogy (1).
- Adverse events, grade 3 and over, up to 1 month after chemotherapy are described according to the NCI-CTC version 3.0 toxicity table as defined by the National Cancer Institute Common Terminology Criteria for Adverse Events or geriatrics health problems (4).

Patients characteristics (1)

- Included patients n=41
 - Evaluable patients: n=37/41
 - Exclusions for missing data: n=4

Characteristics	Value	%
Sex ratio	0.85	
Male	17	45.9
Female	20	54.1
Median age	81.8 [72 – 93]	
Age		
70-79	15	40.5
80-89	20	54.0
≥ 90	2	5.5
Histological subtypes		
DLBCL	17	46.0
Follicular	7	18.9
Mantle	5	13.5
Others	8	21.2

Patient pathway

- In Limousin, a French region among the oldest in Europe, the therapeutic care of Elderly Patients (EP), aged over 70 years old with hematological malignancies, is structured in a college identified within a specialized network, GERHEMATOLIM, part of our regional network HEMATOLIM.
- This network gathers local hospitals around Limoges university hospital which is the referent pole.
- Before 2008, the hemato-geriatric care was empirically performed.
- In 2009 a research project led to the creation of an abbreviated geriatric screening tool that was validated on the EP with hematologic pathology: e-GER-H7.

Patients characteristics (2)

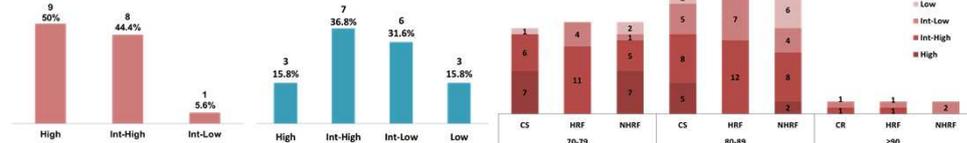
- Anthracycline based CT: 40.6 % (n=15)
- Non anthracycline based CT: 59.4 % (n=22)

Regimens	n	%	Age		
			70-79	80-89	≥ 90
Anthracycline based CT	15	40.6	4	10	1
Alkylant agent based CT	9	24.3	5	4	0
Aracytine based CT	4	10.8	2	2	0
Bendamustine	3	8.1	2	0	1
VP16-Haloxan	3	8.1	0	3	0
Others	3	8.1	2	1	0
Total	37	100	15	20	2

- Severe toxicity after treatment grade 3 and over as been observed in 18/37 patients (48.6%)
 - 1 to 6 events per patients
 - Time of assesment
 - post-c1: n=14
 - post-c2 and post-c3: n=1
 - post-c4: n=2
 - 8 patients had an intravenous regimen

Adverse events	n	Patients %	Age		
			70-79	80-89	≥ 90
Hospitalization	14	37.8	8	6	0
Hospitalization in emergency department	5	13.5	2	3	0
Infection	4	10.8	3	1	0
Severe anemia	3	8.1	1	1	0
Severe neutropenia	3	8.1	2	1	0
Fever	4	10.8	3	1	0
Asthenia	13	35.1	10	3	0
Falls	4	10.8	1	3	0
Confusion	2	5.4	2	2	0
Loss of appetite	2	5.4	2	0	0
Total	54	34	34	17	0

- CR and adverse events n=18
- CR and no adverse events n=19



Conclusion

- Crash score is High in 32.4% in our cohort of very old patients (median age 81.8) with Non Hodgkin Lymphoma mainly due to hematological risk factor (Int-High 64.9%) more than non-hematological (High 24.3%) risk factor.
- CRASH Score, Non Hematologic and Hematologic Risk Factor suggest frailty and risk of toxicity. Adverse effects after chemotherapy are observed in 48.6% of the cohort. These results are lower than the results published by M. Extermann and al (1), maybe because of the adapted chemotherapy regimen and of the comprehensive geriatric care.
- Those results have to be confirmed into a prospective multicentric study network.

CRASH Score

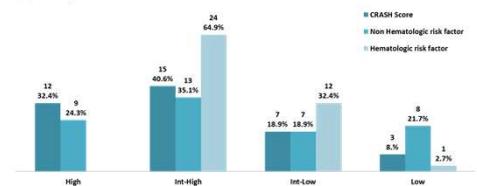
- Global results

CRASH Score (CS)	n	Patients %	Age		
			70-79	80-89	≥ 90
High	12	32.4	7	5	0
Int-High	15	40.6	6	8	1
Int-Low	7	18.9	1	5	1
Low	3	8.1	1	2	0
Total	37	100	15	20	2

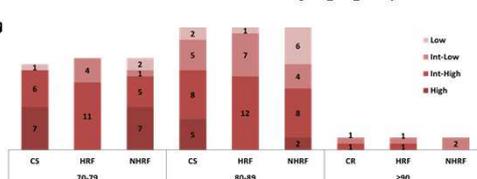
Non Hematologic Risk Factor (NHRF)	n	Patients %	Age		
			70-79	80-89	≥ 90
High	9	24.3	7	2	0
Int-High	13	35.1	5	8	0
Int-Low	7	18.9	1	4	2
Low	8	21.7	2	6	0
Total	37	100	15	20	2

Hematologic Risk Factor (HRF)	n	Patients %	Age		
			70-79	80-89	≥ 90
Int-High	24	64.9	11	12	1
Int-Low	12	32.4	4	7	1
Low	1	2.7	0	1	0
Total	37	100	15	20	2

- CS, NHRF and HRF distribution



- CS, NHRF, HRF: distribution by age group



References

- (1) Predicting the risk of chemotherapy toxicity in older patients: The Chemotherapy Risk Assessment Scale for High-Age Patients (CRASH) score. *Cancer* 2012. M. Extermann, Y. Balci, R. R. Reich, G. H. Lyman, J. DeFelice, R. M. Levine, E. T. Lubiner, F. J. Schreiber, L. Baiduc.
- (2) Predictors of early death risk in older patients treated with first-line chemotherapy for cancer. *JCO* 2011. Soubeyran P, Fonck M, Blanc-Bisson C, Blanc JF, Ceccaldi J, Mertens C, Imbert Y, Carry L, Vogt L, Dauba J, Andriampionona F, Houéidé N, Floquet A, Chomy F, Brousse Y, Ravaut A, Bellera C, Rainfray M.
- (3) Therapeutic strategies in elderly and very elderly patients. *Best Pract Res Clin Haematol* 2012. Soubeyran P, Henriques de Figueiredo B, Soubeyran I, Mertens C, Cazeau AL.
- (4) Cancer Therapy Evaluation Program, Common Terminology Criteria for Adverse Events, Version 3.0, DCTD, NCI, NIH, DHHS, March 31, 2003 (<http://ctep.cancer.gov>). Publish Date: August 9, 2006