

Cardiac events in stage III non-small cell lung cancer (NSCLC) treated in daily clinical practice: is it time for cardiovascular screening and follow-up?

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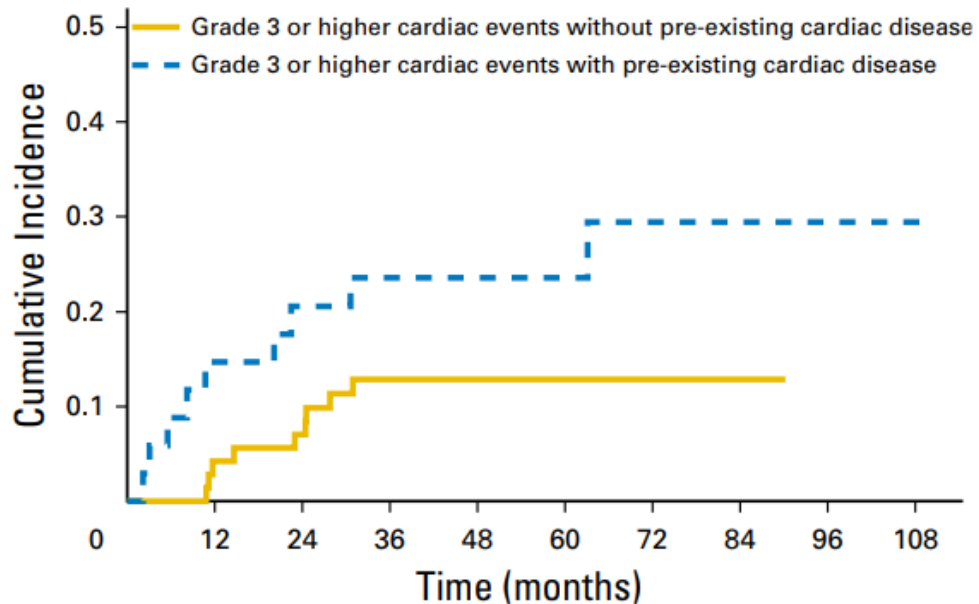
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Disclosure

J. Degens: no disclosure

Cardiac events in NSCLC



Dose-escalated radiotherapy (RT) trials report a high incidence of cardiac events (CTCAE ≥ 3 of 11 – 23%) in NSCLC.

1. Dess RT, J Clin Oncol 35:1395-1402, 2017, 2. Wang K, J Clin Oncol 35:1387-1394, 2017, 3. Wang K. Radiother Oncol 125:293-300, 2017



Method

Method

- Retrospective multi center cohort study
- NSCLC stage III, 2006 – 2013
- Follow up 5 year

Research goals

1. Incidence of pre-existent cardiac comorbidity
2. Medical intervention because of a cardiac event (CTCAE 4.0 ≥ 2)
3. Individual cardiovascular risk prediction

474 stage III NSCLC treated with curative intent

Exclusion 14 patients:

Lobectomy and RT: 1

Lobectomy and CT: 2

Monotherapy RT: 3

Monotherapy and lobectomy: 2

Treatment unknown: 6

460 stage III NSCLC treated with cCRT or sCRT.

460 eligible stage III NSCLC patient were referred for radiotherapy treatment from three medical center locations in the Netherlands.



Results

Patient characteristics (N=460)

	N	%
Male gender	274	59.6
Age (mean, range)	65.2	(32-88)
WHO PS		
0	290	63
1	135	29.3
≥2	35	7.6
Comorbidity index *		
Low (0-3)	155	33.7
Intermediate (4-6)	234	50.9
High (7-9)	71	15.4
WHO/ISH risk score **		
Low (<10%)	227	49.3
High (>10%)	177	38.5
Unknown	56	12.2
Treatment		
cCT	391	85
sCT	69	15
Chemotherapy		
Combined cisplatine	311	67.6
Combined carboplatine	127	27.6
Otherwise/unknown	22	4.8

Patient characteristics

* The Charlson comorbidity index is the most widely used index for prediction of the 10 year survival in patients with multiple co-morbidities.

** World Health Organisation/International Society of hypertension risk prediction score; provides approximate estimates of 10 year cardiovascular risk based on gender, smokingstatus, age, systolic blood pressure and diabetic status.



Results

Pre-existent cardiac profile (N=460)

	N	%
Cardiac risk profile		
Smoker (active/former)	185/200	40.2/43.5
Hypertension, yes	124	27
Diabetes Mellitus, yes	66	14.3
Statine use, yes	118	25.7
History of cardiac comorbidity	138	30
Arrhythmia	37	8
Symptomatic coronary artery disease	61	13.3
Pericardial disease	6	1.3
Heartfailure	21	4.6
Cardiomyopathy NOS *	13	2.8

Research goals

1. Incidence of pre-existent cardiac comorbidity
2. Medical intervention because of a cardiac event (CTCAE 4.0 \geq 2)
3. Individual cardiovascular risk prediction



Results

Survival and new cardiac events (N=460)	N	%
5 year survival	118	25,7
New cardiac event < 5 year, CTCAE ≥ 2		
Yes	150	32,6
Type cardiac event		
Arrhythmia	68	14,7
Symptomatic coronary artery disease	30	6,5
Pericardial disease	13	2,8
Heartfailure	33	7,2
Cardiomyopathy NOS	6	1.3
Overall time to event, months (median, range)	9 (0-60)	
>1 cardiac event	45	9.8

Research goals

1. Incidence of pre-existent cardiac comorbidity
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Results

Uni- and multivariable analysis N=460

Covariate	Univariable analysis					Multivariable analysis			
	HR	95% CI		P-value	N	HR	95% CI		P-value
Male gender	1.56	1.04	2.35	0.03	274				
Age at diagnosis (≥ 70)	1.54	1.03	2.3	0.035	165				
WHO PS (≥ 2)	3.03	1.50	6.10	0.002	35	2.71	1.33	5.52	0.006
Charlson comorbidity index									
CCI high(7-9)	2.50	1.39	4.50	0.002	71				
Pre-existent cardiac comorbidity									
Yes	2.07	1.37	3.14	0.001	138	1.96	1.29	2.98	0.002
Statine use, yes	1.61	1.04	2.48	0.032	118				
WHO 10 year risk of serious cardiac event									
>10%	0.95	0.63	1.44	0.81	177				

Research goals

1. Incidence of pre-existent cardiac comorbidity
2. Medical intervention because of a cardiac event (CTCAE 4.0 ≥ 2)
3. Individual cardiovascular risk prediction



Conclusion

Cardiac events in stage III non-small cell lung cancer (NSCLC) treated in daily clinical practice: **is it time for cardiovascular screening and follow-up?**

YES, because:

30% of patients with stage III NSCLC have pre-existing cardiac comorbidity.

33% develops a new cardiac event during treatment or within 5 years of follow up.

Pre-existent cardiac comorbidity and WHO PS ≥ 2 are significant predictors for cardiac events

NOTE: 30% of patients with no clinical risk factors develop a cardiac event, further studies are indicated to identify predicting factors for cardiac events in these patients.