

Control Number: 57

Abstract Category: Clinical Science in Cardio-Oncology

Title: Coronary Computed Tomography Angiography in Combination with Coronary Artery Calcium Scoring for the Preoperative Cardiac Evaluation in cancer surgery

ABSTRACT BODY

Background

Cardiovascular complications are among the leading causes of morbidity and mortality in patients undergoing non-cardiac surgery. Clinical scores and functional tests are the strategy of choice for evaluating these patients, however over one-third of perioperative MACCE occur in patients with a negative study. The computed tomographic coronary angiography (CTCA) and coronary calcium score (CAC) are emerging in this context as important predictor of clinical outcomes.

Methods

: Patients older than 45 years and presenting two or more cardiovascular risk factors with indication for oncologic surgical treatment were consecutively included. All patients underwent CTCA before surgery. Patients with contraindications to CTCA or previous heart disease were excluded. Clinical and laboratory information, including troponins levels, were collected in postoperative evaluation. Multivariable models were constructed using linear regression.

Results

84 patients were included, 57% male, mean age 68 (+/- 8). 83.3%, 45.2% and 34.5% had hypertension, dyslipidemia and diabetes, respectively. Obstructive coronary arterial disease (CAD) was identified in 12.2% of patients and CAC > 100 was present in 36.9%. The incidence of myocardial injury (MI) was 38 (45%) and MACE (death, infarction, complex arrhythmias and stroke) was 6 (7.1%). The prevalence of CAC> 100 were high in patients with MI than patients without MI (55.2% vs. 21.7%, p 0.005). Similarly, there were more obstructive CAD than non-obstructive CAD in patients who development MI (31.4% vs. 8.7%, p 0.022). Multivariable models showed multivariate analysis showed preoperative blood glucose and anesthesia duration as significant factors

Conclusion

Predictive value of CCTA and CAC is high for perioperative MI in patients with cancer undergoing surgical treatment. It may be considered as a valuable tool for preoperative risk assessment in these patients, as an alternative to other noninvasive methods

Clinical Implications

CCTA and CAC may be useful in preoperative cardiovascular evaluation in this population, as a non invasive stratification of coronary disease

Table

Excluded/Excluded	25 (54.8%)	9 (27.3%)	
Excluded	0 (0%)	1 (3%)	0.400
E			
T1	5 (11.4%)	2 (5.7%)	
T2	6 (13.8%)	4 (17.3%)	
T3	16 (36.4%)	16 (65.7%)	
T4	12 (27.3%)	5 (14.3%)	
T5	5 (11.4%)	6 (17.3%)	
H			
A	23 (52.3%)	19 (54.3%)	0.367
N1	16 (22.7%)	4 (11.4%)	
N2	4 (9.1%)	3 (8.6%)	
N3	1 (2.3%)	0 (0%)	
N4	6 (13.8%)	9 (25.7%)	
M			
M1	7 (16.4%)	1 (3.4%)	
M2	27 (79.4%)	27 (86.4%)	0.060
Subjects			
Partial abdominal amputations	15 (28.3%)	2 (5.2%)	
Trauma	2 (4.3%)	1 (2.8%)	
Colicities	1 (2.3%)	4 (16.5%)	
Colicities	1 (2.3%)	0 (0%)	
Quadrants/pain/colicities	4 (8.7%)	0 (0%)	
Exacerbations	1 (2.3%)	14 (36.8%)	
Colicities	1 (2.3%)	0 (0%)	
Others	11 (28.3%)	10 (28.3%)	
Referrals/colicities	6 (11.4%)	7 (16.4%)	
Acute/Chronic			
General	6 (16.5%)	10 (29.4%)	0.314
General + apical	33 (86.5%)	24 (79.4%)	
Chronic/acute	4 (10.5%)	16 (46.8%)	0.006
Chronic/acute	4 (9.7%)	11 (31.5%)	0.010
Red blood cells			
No leukocytes	41 (93.5%)	26 (73.7%)	0.007
1	3 (8.5%)	1 (3.2%)	
2	0 (0%)	1 (3.2%)	
WBC/CRP	155 (31 - 210)	226 (31 - 427)	0.076
Leucocytes (leucocytes/mm ³)	260 (165 - 340)	315 (246 - 400)	0.023
CRP (CRP/mm ³)	360 (200 - 540)	400 (175 - 600)	0.004

	2007/2008	2008/2009	2009/2010
Expenditure	23 (54.3%)	9 (27.3%)	
Income	0 (0%)	7 (21%)	6,400
TV	5 (11.4%)	2 (5.7%)	
T2	6 (13.8%)	6 (17.3%)	
T3	10 (24.4%)	10 (28.6%)	
T4	12 (27.3%)	5 (14.3%)	
T5	5 (11.4%)	6 (17.3%)	
W			0.367
B	23 (52.3%)	19 (54.3%)	
N1	10 (22.7%)	4 (11.4%)	
N2	4 (8.9%)	3 (8.6%)	
N3	1 (2.3%)	0 (0%)	
N4	0 (0.0%)	0 (0.0%)	
M			
M1	7 (15.6%)	1 (2.9%)	
M2	27 (59.4%)	27 (76.4%)	
Subtotal			0.000
Formal education	13 (28.3%)	2 (5.7%)	
Technical	2 (4.3%)	1 (2.9%)	
College	1 (2.3%)	4 (11.4%)	
College	1 (2.3%)	0 (0%)	
College	1 (2.3%)	0 (0%)	
Graduate/professional	4 (8.9%)	0 (0%)	
Excluded/other	1 (2.3%)	14 (38.6%)	
graduate	3 (6.3%)	0 (0%)	
Other	13 (28.3%)	10 (28.6%)	
Subtotal/graduate	6 (13.4%)	7 (19.4%)	
Academic			0.318
General	6 (13.4%)	10 (28.6%)	
General + special	13 (28.3%)	24 (67.1%)	
Non-academic	6 (13.4%)	10 (28.6%)	0.308
Non-academic	4 (8.9%)	1 (2.9%)	0.049
Post-graduate			0.367
No graduate	43 (93.5%)	29 (77.7%)	
Y	3 (6.5%)	5 (13.9%)	
Z	0 (0%)	5 (13.9%)	
W/graduate	105 (21.1%)	216 (58.4%)	0.016
W/graduate (non)	268 (56.9%)	315 (83.4%)	0.013
W/graduate (non)	368 (77.9%)	400 (100%)	0.004

Calcium score x MINS

Calcium Score Range	MINS -	MINS +
<100	36	14
100-399	7	12
400-999	2	6
>1000	1	3