Coronary computed tomographic angiography in combination with coronary artery calcium score for preoperative cardiac evaluation in cancer surgery

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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 coronary computed tomographic angiography (CTCA) and coronary calcium score (CAC) are emerging in this context as important predictors of clinical outcomes.

METHODS

- Prospective observational study, single center: ICESP (Cancer Institute of the State of São Paulo)
- Inclusion criteria
  - Cancer patients
  - Major surgery: thoracic surgeries and open abdominal surgeries
  - Age above 45 years
  - No current cardiovascular symptoms
  - At least 2 of the following:
    - History of peripheral vascular disease
    - Age above 70 years
    - History of stroke or TIA
    - Current or Former smoker
    - History of heart failure
    - Dyslipidemia
    - Diabetes
    - Arterial hypertension
  - Sign the informed consent
- Exclusion criteria
  - Allergy to iodinated contrast
  - Renal insufficiency with creatinine > 2 mg / dL
  - Previous cardiomyopathy
  - Presence of symptoms compatible with myocardial ischemia or heart failure
  - Clinical indication of functional test or invasive coronary angiography
  - Refusal to participate in the study

RESULTS

Figure 1. Flowchart

Table 1. Participant baseline characteristics

Table 2. CTCA findings

Table 3. Multiple logistic regression for myocardial injury

Table 4. Outcomes

Figure 2. Calcium score and MINS

DISCUSSION

- In this study we found that obstructive coronary artery disease uniartrial and two or more arteries were higher in the MINS group
  - Uniartrial: 25.7% vs 6.5%
  - 2 or more: 5.7% vs 2.2%
- Calcium score: CAC < 100 - 78.3% of patients without MINS vs 40% of patients with MINS
- Calcium score: CAC > 100 - 60% of patients with MINS vs 21.7% of patients without MINS (P = 0.005)
- We found a MACCE rate of 7.1% in the postoperative period of major oncologic surgeries
- MINS: we found a rate of 45.2%, higher compared to previous studies that showed an incidence of 16.0% in general surgeries
- Multivariate analysis identified as predictive variables:
  - Preoperative glycemia
  - Anesthesia duration
- For an increase in a blood glucose unit the chance of myocardial injury decreases 0.959 times and for every minute of anesthesia duration increases 1.007 times the chance of event

CONCLUSIONS

- The incidence of MINS was higher in the postoperative period of oncologic surgeries when compared to the general surgery data present in the literature
- With the partial analysis of the results, we observed that in the MINS group, esophagectomy surgery was more frequent, increased use of DVA and higher rate of transfusions
- Association of higher calcium score in coronary angiography with higher MINS event

REFERENCES


DISCLOSURES

All the authors have no conflicts of interest to disclose.

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