Author’s response to reviews

Title: Association between Coronary Dominance and Acute Inferior Myocardial Infarction: a Matched, Case-control Study

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Responses for the Reviewer:

Jacek Bil, MD, PhD, FESC (Reviewer 2): I think that without further data (e.g. impact on clinical outcomes in FU) the papers add nothing new since it is well known that the larger artery the larger MI size.

Response: Thank you for your suggestions.

1. Previous studies have demonstrated a close link between left coronary artery dominance and acute coronary syndrome or significant coronary artery disease[1-3]. Left dominance has been identified as a predictor of non-fatal MI and all-cause mortality in patients with significant
coronary artery disease[4]. Besides, Goldberg et al. [5] reported that patients with acute coronary syndrome and left dominance have a higher long-term mortality, whereas Veltman et al. found that those with a left dominant coronary artery system are associated with a significantly increased risk of 30-day mortality [6]. Despite these findings, the effect of right dominant anatomy on coronary artery disease has not been reported yet. Our findings indicated that right dominant coronary system may be an important predictor for incidence of acute inferior MI after adjusting for confounding factors. This discovery suggests that the assessment of coronary artery dominance may serve as a tool to evaluate the risk stratification of acute inferior MI in clinics.

2. We reviewed the CAG database and collected the hospital deaths information of 795 patients.

2.1 The hospital mortality of case and control group were 1.5% (4) and 0% (0), respectively. Four dead patients all had right coronary dominance. Right dominance group’s hospital mortality was 0.56% (4).

2.2 We have not made any further analysis of hospital mortality in patients for the following reasons:

2.2.1 Our study was a 1:2 matched case-control study to investigate the relationship between coronary dominance type and acute inferior myocardial infarction. We did not collect the data with hospital death as main outcome, so eventually there were only 4 patients dead in the hospital, the data of this study was not suitable to use case-control study to explore the relationship between coronary dominance type and hospital mortality.

2.2.2 Our study was a 1:2 matched case-control study, and we collected information on coronary dominance type with known outcomes. Eventually, there were 715 right coronary dominance patients and 80 left- or co-coronary dominance patients. The number of left- or co-coronary dominance patients were relatively few. Therefore, the current data were not suitable to use cohort study method to explore the relationship between coronary dominance type and hospital mortality.
In view of the limitations of this study, we plan to conduct a prospective, multi-centre cohort study in the future to explore the relationship between coronary dominance type and myocardial infarction, short-term mortality and long-term mortality.

3. The patients’ information were obtained from the existing electronic health records, therefore, the long-term outcomes were unavailable. We will perform a prospective, multi-centre cohort to explore the relationship between coronary dominance and MI, short-term and long-term outcomes.

We have revised the limitation part in the manuscript as above.


