Reviewer’s report

Title: What is the impact of metabolic syndrome and its components on reflux esophagitis? A cross-sectional study

Version: 0 Date: 01 Oct 2018

Reviewer: HC Lien

Reviewer’s report:

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This is a retrospective cross-sectional study to investigate the correlation between reflux esophagitis and metabolic syndrome in Taiwanese adults undergoing health check. The authors found that 59.6% and 28.5% of study population had reflux esophagitis and metabolic syndrome, respectively. In multivariate logistic regression analysis, age greater than 65, male gender, smoking, alcohol consumption, and metabolic syndrome are weakly associated with reflux esophagitis (all ORs < 2). In another model, they also found that 3 components of metabolic syndrome are also independently associated with reflux esophagitis, including abdominal obesity, elevated blood pressure, and hyperglycemia. In the trend analysis, they found that the severity of reflux esophagitis increased along with the number of components of metabolic syndrome. They concluded that metabolic syndrome is associated with the severity of reflux esophagitis.

The manuscript highlights an important issue of public health on reflux disease, of which metabolic syndrome is undoubtedly a potential cause, although similar concept has been reported in several Asian studies cited in the references of this manuscript. The novelty of this study is to find the association between each component of metabolic syndrome and reflux esophagitis as well as a dose-response relation between the severity of esophagitis and the number of component of metabolic syndrome. These are considered as environmental factors for future intervention.

Major concerns

1. A unusually high prevalence of reflux esophagitis found in this study sample may imply a special study population. Therefore, the author should describe more in details of the study population, such as comorbidities, comedications (e.g. NSAID) , social economic status, and life styles etc, which should be listed in Table 1.
2. Another possible explanation for the high prevalence of reflux esophagitis is the overdiagnosis. Therefore the authors should report the prevalence of reflux symptoms in this population if possible as well as the reliability of the endoscopic diagnosis of reflux esophagitis. Should the authors also report other relevant endoscopic findings such as hiatal hernia, peptic ulcer disease, and H. pylori?

3. Both smoking and alcohol are associated with reflux esophagitis in this study, however, their definition and prevalence were not reported as the potentially important confounders.

4. One important finding of this study is the association between the severity of reflux esophagitis and the number of component of metabolic syndrome. However, it would be more clear if the author can report the odds ratios with adjustments to demonstrate a dose-response relation, instead of the trend test analysis alone. Similarly, a dose-response relation can be showed to demonstrate the odds ratios of reflux esophagitis in different number of component of metabolic syndrome, using 0 component as reference.

Minor concerns:

1. Table 1 & Table 2 are considerably overlapping and should be merged.

2. Table 3 & Table 4 are also overlapping and should be merged if possible. Besides, BMI should be one of the independent factors in the models.

3. The text of the results should be avoided to duplicate the content of Tables.

4. What is the meaning of "Second, the individuals with RE were not evenly distributed among the groups with LA grade A, B, and C, which may also have led to selection bias and influenced the study results." In the discussion page 17?

5. The authors should clarify the definitions of elevated TG and reduced HDL-C. Do they include the anti-dyslipidemia medication use?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
No

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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