Reviewer's report

Title: The metabolic syndrome in different age groups as defined by the International Diabetes Federation: prevalence data from the Norwegian HUNT 2 Study

Version: 2 Date: 6 December 2006

Reviewer: Charles M. Alexander

Reviewer's report:

General

The increasing prevalence of metabolic syndrome with age is well known. The authors seem to be very alarmed regarding the high prevalence of metabolic syndrome in the elderly - difficult to understand given the wealth of data on the subject. Whether elderly individuals with metabolic syndrome need additional evaluation or specific intervention should be determined by their health care providers.

---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Title – The current title is misleading since the authors evaluated participants with regards to both the IDF and the revised ATP III definitions of metabolic syndrome.

Abstract

Background – The intent of the ATP III authors including Scott Grundy and Jim Cleeman was to revise the original definition by incorporating the revised ADA definition for IFG and adding drug treatment as part of the components. The ATP III and AHA/NHLBI are not separate definitions. There is the original and the revised ATP III definitions. The authors should use and refer to it as the revised ATP III definition. Please revise here and throughout the manuscript. Methods – The representativeness or lack thereof of the 10,206 participants is a result and should be in the Results and not the Methods section of the abstract. Results - Authors should use the revised ATP III definition. Conclusions – It is not surprising that metabolic syndrome prevalence increases with age and that many elderly people are categorized as having the syndrome. Prevalence of all of the components increases with age. Further, any risk model will classify elderly individuals as having high risk. Those statements are neither novel nor surprising.

Background

1st paragraph - The intent of the ATP III authors including Scott Grundy and Jim Cleeman was to revise the original definition by incorporating the revised ADA definition for IFG and adding drug treatment as part of the components. They are not separate definitions. Authors should use the revised ATP III definition. Please revise.

2nd paragraph – The authors might want to acknowledge that the IDF definition evolved from the earlier WHO definitions.

3rd paragraph - Authors should just use the revised ATP III definition.

4th paragraph – There are just 2 definitions (IDF and revised ATP III)

Methods

Sample characteristics

1st paragraph – It needs to be explicitly stated that this was a cross-sectional study with all of the inherent limitations of such studies. It is assumed that the time from last meal is self-reported data and that it may be inaccurate. This needs to be acknowledged as a limitation of the study. Definitions of the metabolic syndrome

2nd paragraph – Delete paragraph focused on original ATP III definition

3rd paragraph - Authors should just use the term “revised ATP III definition.”

Results

1st paragraph – Non-fasting individuals are older (95% confidence intervals do not overlap). Non-fasting men have lower HDL-C levels (95% confidence intervals do not overlap). Not surprisingly, fasting
individuals have lower glucose and triglyceride levels (95% confidence intervals do not overlap). It is hard to understand how the authors can ignore such important differences and claim that the sample is representative of the entire study population without additional evidence.

2nd paragraph – Isn't it obvious that those with metabolic syndrome should have the stated differences? Is this text necessary?

3rd-5th paragraphs – Much of the text is redundant with table 3 and adds little, if anything.

6th-9th paragraphs – The intent of the ATP III authors including Scott Grundy and Jim Cleeman was to revise the original definition by incorporating the revised ADA definition for IFG and adding drug treatment as part of the components. The ATP III and AHA/NHLBI are not separate definitions. There is the original and the revised ATP III definitions. The authors should use and refer to it as the revised ATP III definition.

Discussion

1st paragraph - It needs to be explicitly stated that this was a cross-sectional study with all of the inherent limitations of such studies. The finding that prevalence of the metabolic syndrome and its components increase with age is neither novel nor surprising.

4th paragraph – Since this is a cross-sectional study, survivor bias is always an issue in the older age groups. Survivor bias is the most common explanation for the failure of metabolic syndrome prevalence and component prevalence to continue to rise with increasing age in cross-sectional studies. Not observing that phenomenon in their data confirms that this is a very healthy population.

9th paragraph, 3rd sentence - I'm not sure why the authors find it surprising that elderly individuals are at high risk of morbidity and mortality from common disease of aging. The value of identifying younger individuals is that aggressive intervention (especially lifestyle) may prevent their early demise. Obviously, that benefit diminishes with age. Whether elderly individuals with metabolic syndrome need additional evaluation or specific intervention should be determined by their health care providers.

9th paragraph, 5th sentence – Most studies have not shown that risk from metabolic syndrome is independent of its components. In one study, HDL-C and systolic blood pressure were found to be independent predictors of risk. However, the clinical value of metabolic syndrome does not depend on its independence as a predictor of risk.

9th paragraph, 6th sentence – It is commonly observed that the relative risk diminishes with age as absolute risk increases. It would not be surprising if this was also true with regards to metabolic syndrome.

9th paragraph, last sentence - The risk from metabolic syndrome is from cardiovascular disease and diabetes. Why is there any concern as long as any given study shows increased cardiovascular risk? Isn't increased CV mortality sufficient?

10th paragraph, 2nd sentence – As stated above, why does there need to be data showing increased all-cause mortality? Isn't increased CV mortality sufficient?

10th paragraph, 3rd sentence – Many studies have shown that metabolic syndrome is useful for identifying individuals at risk for CV events and diabetes. Isn't that sufficient to make it clinically useful?

10th paragraph, last sentence - I'm not sure why the authors find it surprising that elderly individuals are at high risk of morbidity and mortality from common diseases of aging. Whether elderly individuals need evaluation or intervention should be determined by their health care providers.

Conclusions

Disagree with the authors’ conclusions as stated above.

Figure 3

The authors should use and refer to it as the revised ATP III definition. Please revise figure.

-------------------------------------------------------------------------------

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

-------------------------------------------------------------------------------

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable
Statistical review: No

Declaration of competing interests:
Employee, Merck, West Point, PA