Is the Metabolic Syndrome a Cardiovascular Risk Factor Beyond Its Specific Components?

The discussion about the cardiovascular risk conferred by the metabolic syndrome (MetSyn) is an actual topic, and we read the meta-analysis about this argument published by Gami et al. (1) with interest. A crucial point concerns the following question: is the risk associated with the MetSyn greater (synergic) than the sum of the risk components conferred by the individual factors that define the syndrome? If the answer is yes, the MetSyn should be recognized as a specific entity and taken into account for correct evaluation of cardiovascular risk; whereas if the answer is no, it should be sufficient to treat the individual factors of the MetSyn without paying attention to its presence.

Even if the results reported in the study's abstract (1) correctly affirm that the MetSyn predicts cardiovascular events after adjustment for traditional cardiovascular risk factors, the message reported in the text is different. In fact, Gami et al. (1) affirm that the MetSyn increases "risk of cardiovascular disease or death. . ., even after controlling for its component risk factors," thus reinforcing this concept in the Discussion section where they state that "the analysis . . . demonstrates that the MetSyn confers cardiovascular risk beyond that which is associated with its component risk factors" and concluding that "in addition to targeting individual cardiovascular risk factors primary prevention trials should study interventions that address the MetSyn as one entity." The datum supporting these assertions was the meta-analysis of three studies (2–4) that adjusted the risk conferred by the MetSyn for several traditional risk factors but not for the specific components of the MetSyn.

Moreover, careful analysis of the three studies leads to a different conclusion. In the ARIC (Atherosclerosis Risk In Communities) study, McNeill et al. (2) adjusted the risk associated with the MetSyn for its components, reporting a hazard ratio (HR) of coronary heart disease of 0.91 (95% confidence interval [CI] 0.67 to 1.23) for men and 0.71 (95% CI 0.45 to 1.14) for women, "indicating that the risk of coronary heart disease associated with the syndrome was not in excess of the level explained by the presence of its individual components." In the WOSCOPS (West of Scotland Coronary Prevention Study), Sattar et al. (3) affirm that "possession of the MetSyn was not a significant predictor in the presence of the effects of its individual components when investigated in a multivariate model."

Finally, Schillaci et al. (4) reported an HR associated with the MetSyn of 1.73 (95% CI 1.25 to 2.38), after adjustment for blood pressure as the only component of the MetSyn, without mention of any analysis adjusting the risk associated with the MetSyn for its specific components. In conclusion and in agreement with recent observations (5,6), no study cited supports a synergic effect of the individual factors of the MetSyn on cardiovascular risk, excluding, at the moment, the necessity to consider the MetSyn as a specific cardiovascular risk factor beyond its components.

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REFERENCES


Reply

We appreciate the comments of Dr. Inchiostro and colleagues regarding one of the more controversial topics regarding the metabolic syndrome (MetSyn), namely whether it poses cardiovascular risk beyond what is already conferred by the cardiac risk factors that comprise it. We attempted to address this question by including in a single meta-analysis the results from individual studies that had included MetSyn and its component risk factors into the same multivariate model (1).

Sattar et al. (2) did report an effect estimate (hazard ratio [HR] 1.4; 95% confidence interval [CI] 1.05 to 1.89) from a multivariate model that included the MetSyn, body mass index, blood pressure, lipid abnormalities, glucose abnormalities, and C-reactive protein (which represent the clustering of risk factors that comprise the MetSyn), and we included this in the analysis (2).