cardiovascular death was inversely related to blood pressure (both systolic and diastolic) in contrast to the J-shaped relationships for cardiovascular and total mortality, leading the authors to hypothesize that poor health conditions leading to low blood pressure and an increased risk of death might in part explain the J-shaped curve.

Secondly, as discussed in the full-text version of the guidelines, there is accumulating evidence that blood pressure lowering in the ‘normal’ range is associated with improved cardiovascular outcomes in the population with known coronary disease. In the CAMELOT study, patients with coronary disease and mean blood pressure of 129/78 were randomized to enalapril, amlodipine, or placebo. Blood pressure reductions were similar (5/2 mm) in both treatment groups and associated with similar relative reductions in the composite endpoint of cardiovascular death, MI, and stroke, although not statistically significant in either group because of the small sample size. An intravascular ultrasound substudy demonstrated a significant inverse correlation between progression of atherosclerosis and blood pressure reduction even in this normal blood pressure range, with the greatest benefit observed in patients whose blood pressure fell below 120/80.

Thus, the task force has felt it important, in the absence of unequivocal evidence to the contrary, to preserve consistency between guidelines on prevention and angina with regard to targets for institution of therapy for hypertension in the presence of coronary disease. No lower limit has yet been identified as a definite cutoff beyond which blood pressure should not be lowered further, although, clearly, symptomatic hypotension or postural hypotension will further, although, clearly, symptomatic hypotension or postural hypotension will further, although, clearly, symptomatic hypotension or postural hypotension will further, although, clearly, symptomatic hypotension or postural hypotension will further, although, clearly, symptomatic hypotension or postural hypotension will further, although, clearly, symptomatic hypotension or postural hypotension will. In contrast to the J-shaped curve, the relationship between blood pressure (both systolic and diastolic) in contrast to the J-shaped curve.

References


The dangers of categorizing body mass index

Domanski et al. find body mass index (BMI) to be an independent-risk factor for major adverse coronary events (MACE) in men, but not in women. These results are first based on a dichotomization of BMI at 30 kg/m² and then on a further categorization of BMI into five pre-specified groups. These groupings, the first of which is based on guidelines presented by NIH while the second closely mimics the categorization presented by the World Health Organization, were developed for identifying subclasses of risk for general health concerns associated with obesity and not for any predictive ability to accurately model the relationship between BMI and the risk of the specified cardiac events. If weight categories of BMI are to be used, and there is an extensive literature suggesting that they should not, the categorization employed for the statistical analysis should reflect the nature of the association between the exposure BMI and the outcome MACE. The approach presented in Domanski et al., since it is based on a pre-determined categorization, does not allow for an unrestricted assessment of the relationship between BMI and MACE. Furthermore, any categorization may find non-significant results due to low power induced by small counts in certain BMI groups. For example, the authors find a significant increase between the ‘obese’ and ‘normal’ groups of men (HR = 1.26, P < 0.01), while a much...
larger effect (HR = 0.40) between ‘morbidly obese’ and ‘normal’ women is found to be non-significant (P = 0.12). Investigation of the relative widths of the hazard ratio confidence intervals for these two comparisons in the authors’ figures reveals striking differences in the sample sizes included in the relevant gender by BMI groupings. While the authors do eventually consider BMI as a continuous variable, they curiously restrict it to a dichotomization selected. It would seem that a smoothing technique such as cubic splining, which requires neither categorization nor an assumption of a linear effect, would have been more appropriate for modeling BMI in the analyses presented. Future research studies should avoid grouping continuous variables into categories, especially if it cannot be demonstrated that such a categorization accurately reflects the relationship between this variable and the specific outcome of interest. In addition, continuous variables should not be assumed to have a linear effect unless the assumption of linearity can be justified.

References


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The dangers of categorizing BMI: reply

We thank Drs Hamilton and Filardo for their interest in our article examining the association between obesity and cardiovascular events in patients with established coronary disease. They raise valid points regarding the dangers of categorizing continuous variables, such as body mass index (BMI). Our intent, however, was not to examine the association between BMI and cardiovascular events. Our intent was to examine the association between obesity and cardiovascular events, using BMI cut-points as surrogates for obesity categories. The BMI cut-points used are well established and are often used in the clinical setting for diagnostics and therapeutics, hence their clinical relevance. Even so, we do agree that continuous variables should not be assumed to have a linear effect. We did conduct a cubic spline analysis, which provided no additional information than that from the analysis of the five categories of obesity (underweight, normal, overweight, obese, and morbidly obese). With regards to the differences observed between men and women, we acknowledged in our article that the results are limited by the small sample size in women, that the null finding in women requires further study, and that BMI may not be the best measure of obesity in women. With regards to the non-significant, but large strength of association [hazard ratio (HR) = 0.40] between the morbidly obese and normal women, because of the small sample size and greater variability, the confidence interval is quite wide and therefore, the HR could not be precisely estimated. A larger sample of women would have produced a more precisely estimated HR, which may or may not have been similar to the observed HR of 0.40.

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Cardiovascular pre-participation screening of young competitive athletes for prevention of sudden death: proposal for a common European protocol

In May 2005, Corrado et al.1 published a consensus statement of the ESC working groups recommending pre-participation screening of all young, competitive athletes with the aim of preventing SCD. Screening was recommended to follow the Italian model, which includes 12-lead ECG, with screening commencing at age 12–14 and continuing every 2 years until age 35. The recommendation was based on findings that in the Veneto region in Italy, SCD from HCM among screened athletes was less frequent than expected. A task force appointed by the Danish Society of Cardiology has evaluated the available data and concluded that pre-