Symposium II. Prevention in Hypertension

Hypertension: The Cardiovascular Risk Continuum

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Abstract

Hypertension is established modifiable risk factor for cardiovascular diseases (CVD) and should be considered a complex cardiovascular disorder and continues to be a topic of interest.Together with dyslipidemia, diabetes mellitus and cigarette smoking and all of them, along with nonmodifiable risk factors, age, gender and family history of CVD, have been incorporated into algorithm for risk assessment in the general population. Pathological sequence of events leading from risk factors to CVD is called The Cardiovascular continuum. CVD are the most importantcause of death in the Western world and are responsible fora large proportion of the overall mortality and morbiditycurrently observed in the population of the developedcountries. Atherosclerosis is the main cause of CVDand is the final result of a chain of events leading from riskfactors to overt CV complications including catastrophicevents such as stroke, myocardial infarction, or sudden death. A cumulative analysis of over250,000 adults enrolled from 18 different cohort studiesand followed up for three decades showed that the lifetime risk for developing a symptomatic CVD increased progressively over time in both sexes with a direct relationship with the individual number of CV risk factors and theextent of their control according to guidelines. This suggests the importance of a reliable assessment of the CVrisk profile for a preventive strategy of CV complications.However, despite the advancement in the knowledge ofthe epidemiology and pathophysiology of atheroscleroticvascular disorders, the burden of CVD remains very high and is expected to increase progressively during the next20 years. The main reasons are the progressive increasein the life span and the unsatisfactory control of CV riskfactors in the general population at risk for CVD. For all these reasons, CVD prevention, that is, preventing or delaying clinical disease among asymptomatic andalready exposed individuals, remains an issue of majorpublic health interest.The overall incidence of CVD and its complications depend on the prevalence and clinical relevance of aseries of major CV risk factors that are involved, directlyor indirectly, in the development and progression of atherosclerotic disease. Most of these risk factorscoexist in the same subject, and their cumulative effect is responsible for the development of CV complications.This implies that the overall estimation of the presenceand relative weight of established risk factors is a mandatory strategy to identify the subjects at risk for CVD whomust be considered as the target of an aggressive CVDprevention. In practical terms, any effective approach toprimary care or primary prevention of CVDs is built onthe identification of multivariate models that can reasonably predict the absolute risk for future CV events inlarge segments of the population. However, these risk scores area major advance over clinical risk prediction, and CVD prevention is certainly one of the few areas in clinicalpractice where such an approach is steadily included intopractice guidelines. The concept of "total cardiovascular risk" has been recently developed as an estimate of theoverall propensity of a subject to fall outside the boundaries of average CV risk based on the levels of different risk factors. Accordingly, most of the currently available risk scores have been developed in accordance withthe notion of total CV risk, which actually represents the theoretical rationale behind any effective strategy of CVrisk management. Hypertension is never born "resistant"; it canbecome resistant if treatment is initiated too latein the course of the continuum of cardiovasculardisease. This continuum as an arch, the thickness of which progressivelyincreases while the risk of cardiovascular eventsprogressively increases by the development ofasymptomatic organ damage first,

then the appearance of symptomatic disease, and finally the onsetof cardiovascular events. Intervention trialsindicate that antihypertensive treatment is capableof reducing outcomes by approximately 25%–30%independent of the risk level at which treatment is started. This finding has usually been translatedinto the concept that the absolute benefit of treatment is greater in high-risk patients, but the othercorollary of this finding, namely, that the residualrisk is also greater, has been ignored. The existence of a consistent residual risk in highrisk patients and the finding that some of thesehigh-risk patients may be scarcely amenable totreatment benefits underline the limitations oflate interventions and suggests that the recommendations by many private or public health-careproviders, including the 2011 National Institutefor Health and Clinical Excellence (NICE) inthe United Kingdom, to limit interventions inpatients with a total cardiovascular risk above 20%in 10 years may be unwise. The alternative recommendations may be "the earlier the better," butthen the challenge is in establishing when early isnot too late but also not excessively early.a combined assessment of the number and interaction of CV risk factors is the concept thatallows the definition of the "global CV risk." Correct estimation of global CV risk is a crucial step for the identification of all the subjects where a preventive treatment iswarranted including those with a borderline abnormalityof several CV risk factors who would not have been otherwise treated according to a less comprehensive approachto CVD prevention focused on the identification and treatment of the prevalent risk factors. In conclusion, the available data suggest that clinicians who see the patients for the prevention of CVD shouldfocus their practice on multivariate models that can predict, with reasonably reliability, the global risk of CV events in large segments of the population.