Racial Differences and Cardiovascular Response to Psychological Stress

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In the medical context, racial differences should be regarded as differences, not easily differentiated, in behaviors, lifestyles, and cultural experiences occurring within a particularly defined genetic group.1 This approach might explain why the prevalence of hypertension (a phenotype influenced by genotype and environmental factors) varies considerably between the natives of sub-Saharan Africa and the black populations of North America and the West Indies. Thus any conclusion drawn with regard to African Americans cannot be extrapolated to those of African origin living on other continents.

Historically, African Americans are considered to present increased cardiovascular risk. Currently, some authors consider this over-risk to be specific to African Americans, while others think it is related to a differential exposure to the known risk factors of cardiovascular disease (hypertension, diabetes, cholesterol) irrespective of race. Amongst risk factors, psychosocial factors are more difficult to measure and thus are studied less. The mechanisms usually involved in the pathogenesis of hypertension in black people affect the vascular and renal systems. Reduced endothelium-dependent and -independent vasodilatation has often been shown.2 As for the renal mechanism, sodium-dependent, low renin hypertension is more prevalent. The particular interest of the article by Cooper et al.3 in this issue of the American Journal of Hypertension is that it analyses the relationships between psychosocial factors and a biological marker, endothelin-1, which has been incriminated in the pathogenesis of hypertension in blacks. The questionnaire used to estimate the social economical status is the Social Hollingshead Two-Factor Index of Position, which gives a conversely proportional score. It is completed by the measure of a score (Ethnic Experience—Perceived Discrimination subscale) positively connected to Perceived Discrimination. These two questionnaires, which are widely used, were validated on numerous occasions. The normotensive black and white subjects included in their study had similar social indices. But within the same social index group, the perception of racial discrimination was very different. The statistical analysis showed differential associations in the two groups between social status, the perception of social discrimination and the level of the biological marker, endothelin-1. But this association does not necessarily indicate a cause/effect relationship, which could only be established by longitudinal studies. Other psychosocial factors generating stress (social support, job demand, job decision latitude, and the effort–reward balance) that may vary between races have already been studied by the authors but are not reported in this article.4 Furthermore, other biological stress-related factors such as the secretion of cortisol or catecholamines were not studied. Such biological factors related to psychological stress may have interfered with the presented results. For instance, authors have already reported an increased vascular reactivity to phenylephrine to be associated with social discrimination.5 Nevertheless, this study opens up new perspectives for cardiovascular research by trying to relate race-related psychosocial factors to intermediary biological markers. Further research is required to study the relationship between psychosocial factors, biological markers, and cardiovascular disease.

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