Impact of Race and Ethnicity in the Course and Outcome of Systemic Lupus Erythematosus

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KEYWORDS

• Systemic lupus erythematosus • Ethnicity • Disparities • Disease activity • Damage • Mortality • Treatment • Kidney replacement therapy

KEY POINTS

- No homogeneous racial groups exist within the human race.
- Ethnicity is a biological and social construct.
- Ethnic and regional differences influence the incidence, prevalence, expression, response to therapy, and prognosis of patients with systemic lupus erythematosus (SLE).
- Less favorable outcomes are experienced, overall, by nonwhite patients with SLE.

INTRODUCTION

Ethnicity is a biological and a social construct, which includes ancestral genes and cultural, geographic, and socioeconomic characteristics shared by populations.[1,2] In contrast, race refers to genetically homogeneous groups of people, which is hardly the case for the human race.[3] The US population is heterogeneous even within its ethnic groups, as shown when ancestry informative markers (AIMs, genetic markers differentially expressed in founding populations) were examined in the LUMINA (Lupus in Minorities: Nature vs Nurture) study; in Texan Hispanic patients (mostly of Mexican origin) nearly half of their AIMs were Amerindian (48%); in contrast, the Puerto Rican

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Hispanics had a larger proportion of white/European (35%) and African AIMs (45%); whites and African Americans had about 20% of AIMs of the opposite group.[4,5] The term Hispanic (in the United States) applies to all individuals whose origin can be traced to a Spanish-speaking country, and it is a very heterogeneous population group. On the other hand, approximately 40% of Latin Americans are mestizos, or of mixed European and Amerindian ancestry, but there is great variability within the individual countries. The remaining Latin Americans are of European, African, or Asian ancestry; despite this heterogeneity, in the United States, these individuals may be grouped with the Hispanics, although some distinctions may be made (such as Hispanic blacks).[6] It has been shown that there is a tight association between race/ethnicity (race is used in this review if used in the publication being cited) and socioeconomic features, with minorities having a lower socioeconomic status (SES) than the white majority.[5,7,8] Thus, differences in disease expression, intermediate-term (disease activity), mediate-term (damage accrual, work disability, health-related quality of life), and long-term (mortality) outcomes relate to both components of ethnicity, and it is difficult to disentangle the influence of each one.

In the following sections, the influence of race and ethnicity on disease expression, disease outcomes, response to therapy, and renal replacement therapy is discussed.

DISEASE EXPRESSION

Differences in disease expression, including disease activity and damage accrual, as a function of ethnicity have been well documented (**Table 1**).[1,9–12] In general, patients from ethnic minorities not only develop systemic lupus erythematosus (SLE) more frequently, but tend to have an acute disease onset, present a greater number of, and more severe, clinical manifestations, show higher disease activity, have a higher risk of relapses, accrue more damage (and at a faster pace), and show higher mortality than whites.[6,7,13–18] SLE also tends to present at a younger age in nonwhites (Hispanics, African descendants, and Asians).[6,13,18–20]

Distinct clinical SLE patterns are found among patients from different ethnic groups. Whites, for example, show cutaneous manifestations more frequently, particularly, photosensitivity and malar rash.[15,20,21] In contrast, African descendants experience discoid lupus more frequently,[10,15,21] except for the Gullah population of the Sea Islands of South Carolina, African descendants with minimal genetic admixture, and in whom most integument manifestations are described.[22] Hispanics, African descendants, and Asians show renal, hematologic, serosal, neuropsychiatric, and immunologic manifestations more frequently than whites.[8,13,15,23–26] Lupus nephritis (LN), the most worrisome SLE manifestation, is significantly more prevalent in mestizos, Hispanics, Africans, and Asians.[8–10,21,24–33] For example, in the LUMINA cohort, LN occurred more frequently and tended to occur earlier in the African Americans (62%) and Texan Hispanics (62%), whereas in the Puerto Rican Hispanics, LN occurred at a rate comparable with the whites (26%).[13,28,34] When the contribution of admixture, preferentially reflecting the genetic component of ethnicity, and SES to renal involvement was examined in these patients, admixture explained a larger proportion (African primary but also Amerindian) of the ethnicity-dependent variance than SES (36.8% vs 14.5%), whereas both accounted for an additional 12.2% of the variance.[5] Sánchez and colleagues[35] showed in a larger study that Amerindian ancestry is a predisposing factor for LN occurrence, whereas Richman and colleagues[26] reported that European ancestral genes are protective.

In the GLADEL (for Grupo Latinoamericano de Estudio del Lupus or Latin American Group for the Study of Lupus) cohort, the African Latin American patients and the