Adiposity, inflammation, and risk for death in black and white men and women in the United States: the Reasons for Geographic and Racial Differences in Stroke (REGARDS) study.

CONTEXT: It has been proposed that adiposity is a protective response to excess caloric supply, but it is cardiometabolically harmful once adipocytes become inflamed.

OBJECTIVE: The objective of the study was to assess whether elevated C-reactive protein (CRP), a measure of systemic inflammation, can differentiate individuals at higher mortality risk due to excess adiposity.

DESIGN, SETTING, AND PARTICIPANTS: We conducted an observational study of 16,486 white and 11,168 black men and women in the Reasons for Geographic and Racial Differences in Stroke study, a U.S. national cohort.

MAIN OUTCOME: The main outcome was all-cause mortality.

RESULTS: The mean age of the cohort was 64 ± 9 yr. Over a 6-yr period, 927 whites and 669 blacks died. The absolute risk of death was highest among underweight whites and blacks (9.2 and 14%, respectively), not the obese (4.7% whites; 4.0% blacks) or severely obese (5.9% whites; and 4.6% blacks). Among those with elevated CRP (≥3 vs. <1 mg/liter), underweight [hazard ratio (HR) 2.08, 95% confidence interval (CI) 1.03-4.21] and normal-weight (HR 2.62, 95% CI 1.87-3.67) whites were at significantly higher mortality risk but not severely obese whites (HR
1.55, 95% CI 0.77-2.96), resulting in a statistical interaction (P = 0.01). Similar results were also seen for blacks, although a higher mortality risk among severely obese blacks with CRP ≥ 3 or greater vs. less than 1 mg/liter was also demonstrated (HR 2.58, 95% CI 1.04-6.41). Among whites and black women, higher waist circumference was associated with an increased mortality risk, although this relationship was not modified by CRP levels (P = 0.47 for whites and P = 0.25 for blacks).

**CONCLUSION:** Among middle-aged and older adults, the addition of CRP was most informative among underweight and normal-weight individuals, not the obese. This negated our hypothesis that increased levels of CRP would differentiate individuals at higher mortality risk due to excess adiposity.