Background: Posttraumatic stress disorder (PTSD) has been linked to cardiovascular disease. Increased inflammation, through disruption of neuroendocrine systems, could be implicated, but limited data are available on the link between PTSD and inflammation. In a twin study of military veterans we tested the hypothesis that twins with PTSD had higher plasma levels of inflammatory biomarkers than their twin brothers without PTSD after adjusting for cardiovascular and behavioral factors.

Methods: We examined 510 monozygotic and dizygotic middle-aged male twins (255 pairs), mean age 55 yr (range 47-61) from the Vietnam Era Twin Registry. PTSD and other psychiatric diagnoses were assessed with the Structured Clinical Interview for DSM-IV. Plasma levels of C-reactive protein (CRP) and interleukin-6 (IL-6), and cardiovascular risk factors were measured. Analyses were conducted on log-transformed biomarker data using mixed effects regression to account for pair cluster and to separate between- and within-pair effects.

Results: Of 510 twins, 69 had a lifetime diagnosis of PTSD and 35 had current PTSD. PTSD was associated with increasing CRP levels. Mean CRP levels were lowest in twins with no diagnosis of PTSD (2.5 mg/L) and highest in those with current PTSD (5.1 mg/L); those with lifetime, but no current PTSD, had an intermediate mean CRP level (3.7 mg/L) (p=0.005). Differences were attenuated but remained significant (p=0.02) after adjustment for traditional CVD risk factors, BMI, previous CVD, major depression, and history of substance abuse. Within 29 pairs discordant for current PTSD, after adjusting for the same factors, the twins with current PTSD had 69% higher CRP than their brother without PTSD (p=0.02). Results did not differ significantly by zygosity. There were no differences in IL-6 levels based on PTSD status.

Conclusion: PTSD, particularly a current episode, is associated with elevated CRP. Enhanced inflammation may be a mechanism for increased risk of somatic disorders, including CVD, in persons with PTSD.