IL-6 and TNF-α in unmedicated adults with ADHD: Relationship to cortisol awakening response.


Abstract

There is preliminary evidence that the immune system's cytokines may have an impact on ADHD in children. Nevertheless, studies exploring the possible role of pro-inflammatory cytokines in adults with ADHD are lacking. This study aimed to assess differences in serum IL-6 and TNF-α between patients and controls and their possible relationship to resting cortisol. 108 adults with ADHD (DSM-IV), 44 inattentive and 64 combined, age ranging between 18 and 55 years, and 27 healthy controls were included. Major psychiatric disorders and organic comorbidities were excluded. Serum samples for IL-6 and TNF-α and salivary samples to assess cortisol awakening response were collected on the same day. Analysis of variance was applied to study differences in IL-6 and TNF-α between groups. Pearson correlations were used to study associations between IL-6, TNF-α, and CAR. There were no significant differences in serum IL-6 or TNF-α levels between patients and controls or between combined and inattentive patients. Negative associations between IL-6 (r=-0.386, p=0.020), TNF-α (r=-0.372, p=0.023) and cortisol awakening response were found in the inattentive subtype, whereas no association was seen in the combined subtype. A negative correlation between IL-6 and cortisol was also present in the control group (r=-0.44, 0.030). The peripheral pro-inflammatory markers, IL-6 and TNF-α, do not appear to be primarily involved in ADHD in adults, although the role of other inflammatory markers cannot be ruled out. The differences regarding the association between IL-6 and TNF-α and morning cortisol response suggest possible underlying neurobiological differences between the inattentive or combined patients that merit further studies.