Mind over hormones: sex differences in associations of well-being with IGF-I, IGFBP-3 and physical activity in the KORA-Age study.

Abstract:

Associations between well-being, serum levels of insulin-like growth factor 1 (IGF-I), and its primary binding protein IGFBP-3, were examined in an epidemiologic study. The influence of physical activity on the effect of hormones on well-being was considered. Cross-sectional data from participants of the KORA-Age study (n=985, age 64-93) was analyzed in sex-specific multivariable regressions of well-being (World Health Organization (WHO) -5) or ill-being (geriatric depression scale (GDS) -15). Models were adjusted for age, physical activity, sleep, BMI, smoking, and cognition. Adjusted WHO-5 means demonstrated the interaction between hormone quintiles with physical activity. Full models indicated that increased IGFBP-3 positively associated with well-being in women (? estimate=0.14, standard error (SE)=0.06) and less so in men (?=0.11, SE=0.07). IGF-I associated positively with depression (?=0.11, SE=0.06) and negatively with well-being (?=-0.11, SE=0.06) in women. Similar but not statistically discernable effects were observed in men. Adjusted mean WHO-5 scores illustrated the positive effect of physical activity and IGFBP-3 on well-being in women only. Opposite and independent associations of IGF-I and IGFBP-3 on well-being observed in women suggests neuroprotective effects of IGFBP-3 in age.