Overweight/Obesity in Young Adulthood Interacts With Aspects of EBV Infection in MS Etiology

Objective Because obesity affects the cellular immune response to infections, we aimed to investigate whether high body mass index (BMI) in young adulthood and high Epstein-Barr nuclear antigen 1 (EBNA-1) antibody levels interact with regard to MS risk. We also aimed at exploring potential 3-way interactions between BMI at age 20 years, aspects of Epstein-Barr virus (EBV) infection (high EBNA-1 antibody levels and infectious mononucleosis [IM] history, respectively) and the human leukocyte antigen (HLA)-DRB1*15:01 allele.

Methods Using Swedish population-based case-control studies (5,460 cases and 7,275 controls), we assessed MS risk in relation to interactions between overweight/obesity at age 20 years, IM history, EBNA-1 levels, and HLA-DRB1*15:01 status by calculating ORs with 95% CIs using logistic regression. Potential interactions were evaluated on the additive scale.

Results Overweight/obesity, compared with normal weight, interacted significantly with high (≥50th percentile) EBNA-1 antibody levels (attributable proportion due to interaction 0.2, 95% CI 0.1–0.4). The strength of the interaction increased with higher category of EBNA-1 antibody levels. Furthermore, 3-way interactions were present between HLA-DRB1*15:01, overweight/obesity at age 20 years, and each aspect of EBV infection.

Conclusions With regard to MS risk, overweight/obesity in young adulthood acts synergistically with both aspects of EBV infection, predominantly among those with a genetic susceptibility to the disease. The obese state both induces a chronic immune-mediated inflammation and affects the cellular immune response to infections, which may contribute to explain our findings.

Time Course of Dementia Following Sepsis in German Health Claims Data

Objective We evaluated the short-, medium-, and long-term effects of sepsis on dementia incidence using German health claims data.

Methods A total of 161,567 patients (65 years or older) were followed from 2004 to 2015 at quarterly intervals. Time since sepsis was categorized into 0 (the effective quarter of sepsis diagnosis), 1–8, and ≥9 quarters since the latest diagnosis of sepsis, taking into account admission to intensive care unit and controlling for delirium, surgery, age, sex, and comorbidities. Incident dementia was defined for all persons who did not have a validated dementia diagnosis in 2004 and 2005 and who received a first-time, valid diagnosis between 2006 and 2015.

Results During the quarter of sepsis diagnosis, patients not admitted to intensive care had a 3.14-fold (95% CI 2.83–3.49) increased risk, and those with intensive care stay had a 2.22-fold (95% CI: 1.83–2.70) increased risk of receiving an incident dementia diagnosis compared with patients without sepsis. The impact of sepsis on incident dementia remained in the following 2 years, remitting only thereafter.

Conclusions For sepsis survivors, medium-term dementia risk remains elevated, whereas long-term risk may reach the level of those without sepsis, even after controlling for delirium. These findings encourage identifying modifiable components of hospital and rehabilitation care.
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