Psoriasis and the risk of stroke: a population-based cohort study


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Presented at the 7th International Congress of Psoriasis: from Gene to Clinic, London, UK, December 2014

OBJECTIVE: To investigate whether psoriasis is independently associated with risk for stroke after adjusting for associated risk factors.

METHODS: The study comprised patients, with and without psoriasis, contributing to the Clinical Practice Research Datalink between 1995 and 2009. Eligible criteria were: having a first diagnosis of psoriasis during the study window; being at least 20 years and having no history of CVD or diabetes. Controls were matched (1:5) by age, gender, practice and calendar year. The main outcome was incident fatal and non-fatal stroke. The risk of stroke associated with psoriasis was investigated using a Cox proportional-hazard regression using shared frailty models and a stepwise forward approach (p=0.05). In the main analysis, the multivariable model included psoriasis, severe psoriasis (exposure to phototherapy, systemic therapy or biologics), inflammatory arthritis, diabetes, chronic kidney disease (CKD), hypertension, hyperlipidaemia, transient ischaemic attack (TIA), myocardial infarction (MI), atrial fibrillation (AF), angina, valvular heart disease, thromboembolic disease, congestive heart failure and smoking as time-varying covariates; depression, age, gender and calendar year as baseline characteristics. Four additional sensitivity analyses were carried out in order to confirm the robustness of results: a) performing multiple imputation and adding body mass index (BMI) and index of multiple deprivation (IMD) to the main model; b) including only patients with at least 1 GP visit per year; c) including only patients with at least 6 months follow-up; d) including only patients linked to the mortality Office for National Statistics and with IMD score information.

RESULTS: 48,523 patients with psoriasis and 208,187 controls were eligible for the analysis and were followed-up for a median of 5.2 years. 473 patients with psoriasis (0.97%) had a stroke event, compared to 1,852 controls (0.89%). The crude hazard ratios (HRs) of stroke associated with psoriasis were 1.09 (0.98-1.20) and 1.11 (0.67-1.84) respectively. Neither psoriasis nor severe psoriasis was selected in the multivariable stepwise regression model. When forced in, their adjusted HRs were 1.04 (0.94-1.15) and 1.09 (0.65-1.83) respectively. Neither psoriasis nor severe psoriasis was selected in the multivariable stepwise regression model. When forced in, their adjusted HRs were 1.04 (0.94-1.15) and 1.09 (0.65-1.83) respectively. The stepwise regression model included: age HR 1.08 (1.08-1.09); TIA HR 5.02 (4.32-5.85); smoking HR 1.76 (1.57-2.13); AF HR 2.16 (1.85-2.52); calendar year HR 0.95 (0.93-0.96); hypertension HR 1.46 (1.34-1.60); male gender HR 1.37 (1.26-1.48); MI HR 1.68 (1.33-2.13); thromboembolic disease HR 1.39 (1.16-1.66); CKD HR 1.19 (1.03-1.38) and angina HR 1.25 (1.01-1.55). None of the sensitivity analyses changed the conclusion of the main findings.

CONCLUSION: There was no evidence of an independent association of either psoriasis or severe psoriasis with the risk of stroke.