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


Affiliations:  
1Centre for Pharmacoepidemiology and Drug Safety Research, Manchester Pharmacy School,  
2Manchester Diabetes Centre, Central Manchester University Hospitals NHS Foundation Trust, Endocrinology and Diabetes Research Group, Institute of Human Development,  
3Arthritis Research UK Centre for Epidemiology, Centre for Musculoskeletal Research, Institute of Inflammation and Repair, University of Manchester,  
4Manchester Centre for Dermatology Research, Institute of Inflammation and Repair, University of Manchester,  
5Salford Royal NHS Foundation Trust, Manchester Academic Health Science Centre, Manchester, UK

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OBJECTIVE: To investigate whether psoriasis is independently associated with risk for myocardial infarction (MI) after adjusting for cardiovascular disease (CVD) risk factors.

METHODS: The study comprised people, 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 MI events. The risk of MI associated with psoriasis was investigated using a Cox proportional-hazard regression using shared frailty models. 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 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 and; d) including only patients linked to the mortality Office for National Statistics and with IMD score information.

RESULTS: A total of 256,710 patients (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. 657 patients with psoriasis (1.35%) had a MI event, compared to 2,569 controls (1.23%). The crude hazard ratios (HRs) of MI associated with psoriasis were 1.06 (0.97-1.15) and for severe psoriasis 1.50 (1.04- 2.16). However after controlling for CVD risk factors, the adjusted HRs were attenuated to 0.97 (0.89-1.06) and to 1.20 (0.82-1.77) respectively. In the multivariable models, the highest relative hazard were observed for current smokers HR 2.58 (2.35-2.84); male gender HR 2.45 (2.20-2.73); inflammatory arthritis HR 1.62 (1.34-1.96); hypertension HR 1.30 (1.20-1.40); CKD HR 1.29 (1.12-1.48); diabetes HR 1.25 (1.09-1.44); hyperlipidaemia HR 1.14 (1.03-1.25) and age per year HR 1.07 (1.07-1.08). 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 MI after adjusting for known CVD risk factors. Inflammatory arthritis, a common co-morbidity of psoriasis, appeared to be the major confounder between severe psoriasis and risk of MI.