Atherosclerosis as a systemic feature of psoriasis

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Psoriasis is a common chronic inflammatory skin condition that affects 1–3% of the population in northern Europe and the USA. It is clinically distinct, and consequently easy to diagnose. Because psoriasis is so visible, its psychological effect on patients’ wellbeing is comparable with that of diabetes and cancer. Although psoriasis is confined to the skin, it is associated with psoriatic arthropathy in about 10% of patients, and more rarely with other autoimmune conditions such as Crohn disease. However, the evidence is now accumulating that, similarly to other chronic inflammatory diseases such as systemic lupus erythematosus and rheumatoid arthritis, psoriasis may in fact be a true systemic inflammatory process, intimately linked with atherosclerosis.

Thirty-seven years ago, McDonald and Calabresi made an appeal to the attention of the medical community about a possible link between psoriasis and cardiovascular disease. However, it took another 33 years and a large UK GP database before Gelfand et al. established an unequivocal and clinically highly significant link between psoriasis and atherosclerosis. According to their study, the adjusted relative risk of myocardial infarction in a 30-year-old patient with psoriasis varies between 1.29 and 3.10, depending on a severity of psoriasis. The strength of the association is close to that of diabetes mellitus (DM). A recent study also found psoriasis to be linked to peripheral vascular disease, stroke, cardiovascular disease and overall mortality. Although several cardiovascular risk factors (diabetes, hyperlipidaemia, hypertension, smoking and obesity) are more common in psoriasis, the study of Gelfand et al. found that the observed association between psoriasis and atherosclerosis was independent of such risk factors.
There is a potential molecular explanation for this observed association between psoriasis and atherosclerosis. Both diseases have a strong T helper (Th)1 and Th17 polarization of the adoptive immune response and diminished or dysregulated T regulatory function, and they share a myriad of common cytokines, chemokines, adipokines and innate mechanisms, including those mediated by tumour necrosis factor (TNF)-α, C-reactive protein and Toll-like receptor. Perhaps more important is the observation that treatment of severe psoriasis (and other systemic inflammatory diseases such as rheumatoid arthritis), including the use of drugs associated per se with adverse effects on the cardiovascular system, may lead to the amelioration of atherosclerosis and reduction in mortality. In particular, the use of methotrexate and anti-TNF-α agents has been shown to reduce cardiovascular mortality and the incidence of myocardial infarction in rheumatoid disease, especially in patients who respond well in terms of reduced systemic inflammation, while ciclosporin and etretinate, known to cause hypertension and dyslipidaemia, respectively, at the very least do not seem to increase the risks of cardiovascular-related death in psoriasis.

The current amount of evidence has now reached a critical mass, which demands wider recognition of psoriasis as a significant risk factor for atherosclerosis. The high visibility and ease of diagnosis of psoriasis should facilitate screening for early atherosclerosis that has not yet manifested itself clinically. It has been suggested that patients with psoriasis, especially those with severe persistent psoriasis, should be screened for coronary artery disease and associated risk factors including diabetes, blood pressure, smoking and dyslipidaemia. Identified risk factors should be addressed and lifestyle changes advised. However, it is unclear whether patients with psoriasis alone, without other cardiovascular risk factors, would benefit from aspirin, statins and/or agents to lower blood pressure, which have proved effective in reduction of cardiovascular morbidity in DM. Future research should also address whether treatment with drugs such as methotrexate, TNF-α blockers or retinoids could ameliorate the development of atherosclerosis in patients with psoriasis, within an acceptable risk–benefit ratio.