

# Psoriatic arthritis and cardiovascular disease

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Psoriatic arthritis (PsA) is a chronic inflammatory skeletal and dermatological disease with heterogeneous clinical features and a strong relationship with spondyloarthritis group, sharing several genetic, clinical and radiographic characteristics [1] and with a prevalence in the western country populations around 0.07-0.42 [2]. Therapeutic options for both skin and joint disease have dramatically improved allowing efficient control of inflammatory activity of patients, including control of comorbidities such as metabolic and cardiovascular diseases (CVD), as well as depression and anxiety that were reported like negative predictors of PsA remission [3]. Inflammatory charge of the psoriasis disease seems an independent risk factor for CVD in those patients with severe joint or skin disease [4] even in patients without traditional CVD risk factors and having a high frequency of subclinical atherosclerosis than matched controls [5,6]. Severe psoriasis is associated with a risk of more than 50% ischemic heart attack type acute myocardial infarction [7] with rates almost equal to coronary involvement caused by Type 2 Diabetes Mellitus [8]. Moreover, Husted et al. demonstrated that patients with psoriatic arthritis are more prone to cardiovascular comorbidity than patients with psoriasis without arthritis [9] and patients with PsA are at increased risk of cardiovascular morbidities compared with the general population [10]. In addition to known risk factors for CVD, severe psoriasis is an important predictor in patients with PsA.

Data from the baseline visit of a 10-year Spanish cardiovascular prospective study (CARMA project) that includes a cohort of patients with rheumatoid arthritis (RA), ankylosing spondylitis (AS), PsA and another cohort of matched individuals without inflammatory diseases show prevalence of CV morbidity, CV risk factors and systematic coronary risk evaluation (SCORE) assessment higher in patients with inflammatory diseases and it is of particular relevance as almost half of them were receiving biological therapy and most patients had low disease activity at the time of assessment [11].

Mortality seems to be increased in PsA patients because they could have a high prevalence of risk factors for CVD including hypertension, hyperlipidemia, diabetes and others like obesity or smoke habit [12]. Cardiovascular events (CVE) are increased in PsA patients as was observed by Gladman et al. [10] who show significantly increased risk of hypertension, myocardial infarction (MI) and angina in PsA.

Other comorbidities are increased, such as depression and anxiety or non-alcoholic fatty liver disease (NAFLD), that they have been associated with CVD as well [13,14]. A systematic review and meta-analysis found anxiety and depression were highly prevalent among PsA patients and they had reported greater disease activity [15], which we know to be related with CVD. NAFLD is one of the most frequent cause of chronic liver disease with a prevalence of 10%-25% in the general population and itself represents a further independent cardiovascular risk factor for atherosclerosis which is likely linked to arterial stiffness [16,17] and several studies have demonstrated the presence of a direct association between NAFLD and CVD suggesting that NAFLD should be considered a significant independent risk factor in the absence of traditional cardiovascular (CV) risk factors and metabolic syndrome for subclinical and clinical CVD [14].

Treatments such as conventional synthetic disease-modifying antirheumatic drugs (csDMARD) or some non-steroidal anti-inflammatory drugs (NSAIDs) may also exacerbate heart disease [18] although in others studies patients with RA treated with methotrexate and especially with anti-TNF- $\alpha$  drugs have been associated with lowering the risk of CV events [19-21]. Recent advances in the management of treatment with biological disease-modifying antirheumatic drugs (bDMARD) may

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improve the outcome of patients with Pso and PsA [22], but not all studies support this conclusion and did not find the association between the treatment of biological agents and CVE in patients with Psoriasis and PsA [23].

In summary, there is an increased prevalence of CV risk factors and CVD in patients with PsA when compared with general population and with those with psoriasis only. Inflammation appears as an important feature explaining the increased cardiovascular risk in PsA, by participating in the atherosclerotic process and increasing the established conventional cardiovascular risk factors.

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