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Commentary

Psoriatic Arthritis: The Link between Cardiometabolic Disease and Inflammatory Activity

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ABSTRACT

Background and objective: Psoriatic arthritis is accompained by several cardiometabolic comorbidities. Obesity causes a low-grade systemic inflammation and is a negative predictor of treatment response. We wanted to evaluate if there are interactions between metabolic status, inflammatory parameters and disease activity; and whether metabolic or cardiovascular diseases have any association with the reduction of the inflammatory burden by treating the psoriatic arthritis.

Methods: we have carried out a cross-sectional descriptive study of 160 patients with psoriatic arthritis. Socio demographic, clinical and analytical variables were collected, as well as the presence of dactylitis and enthesitis; and HAQ, DAPSA and Minimal Disease Activity criteria. Chi-square test and the H of Kruskall Wallis were used to carry out comparisons, considering $p<0.05$ as statistically significant. To establish correlations, Pearson correlation coefficient was used.

Results: BMI and waist circumference correlate with CRP and ESR (significance: <0.05) although the correlation strength is low (Pearson<0.4), but there is no such relationship with DAPSA or meeting MDA criteria. Using biologic therapies is associated with a lower prevalence of cardiovascular events (p=0.047; OR: 0.12, CI 95%: 0.01-0.9) and enthesitis (p=0.008; OR: 0.3, CI 95 %: 0.16-0.56); and normal levels of CRP (p=0.029; OR: 0.25, CI 95%: 0.07-0.87) and ESR (p=0.024; OR: 0.36, CI 95%: 0.16-0.82) when comparing to conventional therapies.

DESCRIPTION

In this manuscript, we focused on the obesity-inflammation relationship and how this link could impact cardiovascular comorbodities. This work is based on two main principles:

- The obesity entails a low-grade systemic inflammation.
- Most of the immune mediated inflammatory diseases (IMIDs) are associated with a higher cardiovascular risk.

TNFα is a key molecule that is involved in both principles. On the one hand, the adipocytes of overweighted individuals are prone to synthesize pro-inflammatory cytokines, such as TNFα, IL-12 and IL-23 [1,2]. On the other hand, TNFα is involved in aterosclerosis pathogeny, but no only this molecule. Acute pase reactants such as CRP and ESR can increase cardiovascular risk [3,4]. Given this relationships, we wanted to know if the treatment choice could impact on cardiometabolic comorbidities, specifically TNFα blockade. At this moment, the evidence about this issue is not clear [5-8].

In our work, we have two main findings. The first of them raises a warning about the value of acute phase reactants in obese patients. We found out that, in our series, BMI and waist circumference are positively associated to higher levels of CRP and ESR, but not necessarily with higher DAPSA scores or not achieving MDA criteria (Supplementary Table 1). This is consistent with previous studies, which reached the same results [9].

The second finding concers the cardiometabolic comorbidities. In our series, there were no differences between those receiving biologic therapies and non-biologic treatment, in terms of metabolic comorbidities. This is probable due to the data collecting protocol. Nevertheless, we found out that the use of biologic therapies were associated to:

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- Lower prevalence of MACE (p=0.047; OR: 0.12, CI 95%: 0.01-0.9);
- Lower prevalence of enthesitis (p=0.008; OR 0.3, CI 95%: 0.16-0.56);
- Lower DAPSA score (p=0.03; OR: 0.28, CI 95%: 0.11-0.72);
- Meeting MDA criteria (p=0.001; OR: 3.65, CI 95%: 1.63-8.13);
- Lower/normal levels of CRP (p=0.029; OR: 0.25, CI 95%: 0.07-0.87) and ESR (p=0.024; OR: 0.36, CI 95%: 0.16-0.82).

This highlights the importance of controlling the inflammation in patients suffering from psoriatic arthritis (PsA), as well as other IMIDs. Furthermore, we also must be careful with some features of PsA, since they are associated with higher cardiovascular risk, as we found out in previous studies of our group [10].

Although we didn´t focus on skin manifestations, there are some thoughts that can be useful when facing psoriasis patients. First of all, we must be careful when evaluating CRP and ESR in obese patients. They could be abnormal and not necessarily because of the inflammatory activity of the disease. This also has been observed in other diseases, such as rheumatoid arthritis [9], so it is likely that the in psoriasis it behaves the same way.

The second though is about inflammation and cardiovascular risk. In our series we found out that anti-TNF treatment is associated with a lower cardiovascular risk. This raises some major questions: does biologic therapy achieve a greater inflammation reduction and, thus, a lower cardiovascular risk in patients suffering from IMIDs? Could be justified the use of biologic treatment in patients with higher cardiovascular risk? This is certainly and interesting field of study. And, last of all, we should remember that there are some features of IMIDs that a associated to higher cardiovascular risk. Enthesitis and joint erosions are one of them in psoriatic arthritis.

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