Glomerular filtration rate in patients with psoriasis treated with etanercept

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Abstract
Objective: To estimate the prevalence of chronic kidney disease (CKD) and evaluate renal function in patients with moderate-to-severe chronic plaque psoriasis treated with etanercept (an anti-tumour necrosis factor-α drug).

Methods: This retrospective cohort study included patients with moderate-to-severe chronic plaque psoriasis. Kidney function was evaluated using estimated glomerular filtration rate (EGFR).

Results: The prevalence of CKD at baseline was 3.9% (two of 51 patients). EGFR was unaffected by etanercept therapy (83.6 ± 23.9 at baseline vs 82.2 ± 21.6 ml/min per 1.73 m² after 6 months).

Conclusion: EGFR was unaffected by 6 months’ etanercept treatment. Physicians should be aware of the risk of CKD when providing comprehensive care to patients with moderate-to-severe psoriasis.

Keywords
Etanercept, glomerular filtration rate, psoriasis

Introduction
Psoriasis is frequently associated with comorbidities that can affect kidney function, including diabetes mellitus, arterial hypertension and obesity. Chronic kidney disease (CKD) is characterized by a reduction in glomerular filtration rate (GFR) to <60 ml/min for ≥3 months. CKD affects 10.4% of patients with psoriasis, and is associated with an increased risk of cardiovascular disease, renal failure and mortality. Unlike conventional systemic therapies, anti-tumour necrosis factor (TNF)-α drugs are not believed to affect kidney function, although data regarding patients with psoriasis and renal failure are not available. GFR is the best index of renal function, as it assesses the progression of kidney dysfunction. The Modification of Diet in Renal Disease (MDRD) algorithm is the most widely used method for estimating GFR.
The objective of this study was to estimate the prevalence of CKD and evaluate variations in renal function in patients with moderate-to-severe chronic plaque psoriasis treated with etanercept (an anti-TNF-α drug).

**Patients and methods**

**Study population**

This retrospective cohort study enrolled consecutive patients with moderate-to-severe psoriasis who attended the Section of Dermatology and Venereology, University of Verona, Verona, Italy, between June and December 2014. Inclusion criteria were: aged >18 years; psoriasis area severity index (PASI) score >10; ongoing continuous treatment with 50 mg/week etanercept for ≥6 months. The study was approved by the internal review board of the Department of Medicine, University of Verona, Verona, Italy. All patients provided written informed consent prior to enrolment.

**EGFR calculation**

Estimated GFR was calculated using the MDRD algorithm at baseline and after 6 months’ continuous treatment with etanercept. Moderate-to-advanced (stage 3–5) CKD was defined as EGFR <60 ml/min per 1.73 m².

**Statistical analyses**

Data were presented as mean ± SD or n (%), and analysed using unpaired t-test or χ²-test as appropriate. Statistical analyses were performed using SPSS® version 19.0 (SPSS Inc., Chicago, IL, USA) for Windows®, and P-values <0.05 were considered statistically significant.

**Results**

The study included 51 patients (35 male/16 female; mean age 53 ± 13 years; age range 35–71 years). Mean body mass index was 27.7 ± 5.1 kg/m². There were 28 patients (54.9%) with psoriatic arthritis, 12 (23.5%) with diabetes, and 25 (49.0%) with hypertension.

The prevalence of moderate-to-advanced (stage 3–5) CKD at baseline was 3.9% (two of 51 patients). EGFR was unaffected by etanercept therapy (83.6 ± 23.9 at baseline vs 82.2 ± 21.6 ml/min per 1.73 m² after 6 months).

**Discussion**

Psoriasis is associated with several comorbidities, the presence of which may affect treatment choice and monitoring. Patients with moderate-to-severe psoriasis have an increased risk of CKD that is independent of traditional risk factors for renal dysfunction. The presence of CKD should be determined before starting systemic treatment in order to avoid the potential worsening of kidney function. Long-term cyclosporine and, to a lesser extent, methotrexate treatments are known to affect kidney function, although anti-TNF-α drugs are not believed to do so. Our study found that GFR was unaffected by 6 months’ etanercept treatment.

In conclusion, physicians should be aware of the risk of CKD when providing comprehensive care to patients with moderate-to-severe psoriasis; the use of the MDRD formula can be easily implemented in daily practice.

**Declaration of conflicting interest**

The authors declare that there are no conflicts of interest.

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