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Dupilumab and Prurigo Nodularis-like phenotype in Atopic Dermatitis: our experience of efficacy

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Dupilumab and Prurigo Nodularis-like phenotype in Atopic Dermatitis: our experience of efficacy

Atopic dermatitis (AD) is a common chronic multifactorial dermatosis that can occur through different clinical phenotypes although all undergo identical pathogenetic mechanisms such as the Prurigo Nodularis (PN)-like phenotype.

Here, we described eleven patients with PN-like atopic dermatitis treated with dupilumab, a human monoclonal IgG4 antibody that inhibits interleukine-4 (IL-4) and interleukine-13 (IL-13).

Efficacy outcomes were performed at baseline, at first and fourth months from starting treatment.

We collected different scores such as NRSi as well as IGA. At the same time, patient subjective benefits were analysed through DLQI, POEM, HADS scores. Quality of sleep was also recorded by NRSS. All patients showed rapid clinical improvement of cutaneous lesions and no other new lesions were reported during treatment. Reduction of daily itching was referred already after the first month of treatment. These results show the effectiveness of dupilumab in this clinical setting of AD, supporting this treatment as a valid therapeutic approach in difficult-to-treat-PN-like clinical presentation of AD.

Keywords: prurigo nodularis; atopic dermatitis; dupilumab;

Introduction & Objectives

Atopic dermatitis (AD) is a common chronic multifactorial dermatosis that can occur through different clinical phenotypes although all undergo identical pathogenetic mechanisms (1) such as the Prurigo Nodularis (PN)-like phenotype. The latter is characterized by multiple and widespread hyperkeratotic and excoriated firm nodules arising in the setting of chronic and recalcitrant pruritus (2).

Here, we described eleven cases of AD with PN-like phenotype treated with dupilumab, a human monoclonal IgG4 antibody that inhibits interleukin-4 (IL-4) and interleukin-13 (IL-13) signaling by specifically binding to the IL-4R alpha subunit shared by the IL-4 and IL13 receptor complexes (3).

Our purpose is to be assessed the effectiveness of this new biologic therapy like possible and future novel treatment option for more AD-clinical phenotypes such as PN-like that amounts to 11 cases of a total of 103 patients with AD in our casistic.

Materials & Methods

In this observational cohort study we retrospectively included 11 patients: six males and five females. Mean age was 51 years (range 19-88). Eight of 11 patients were classified as extrinsic AD due to association to cutaneous hypersensitivity to various environmental allergens as well as atopic comorbidities or due to high blood level of IgE, while 3/11 were intrinsic AD.

All patients previously used emollients, topical corticosteroids and calcineurin inhibitors. All of them used antihistamine and systemic immunosuppressive therapy, including glucocorticosteroids, cyclosporin and methotrexate.

Dupilumab was begun in according to dose regimen for atopic dermatitis, i.e. 600 mg subcutaneous injection at week 0 followed by 300 mg subcutaneous injection every two weeks.

Efficacy outcomes were performed at baseline, at first and fourth months from starting treatment.

We collected different scores such as Numeric rating scale itch intensity (NRSi) as well as IGA (Investigator's Global Assessment). At the same time, patients subjective benefits were analysed

throughout DLQI (Dermatology Life Quality Index), POEM (Patient-Oriented Eczema Measure), HADS (Hospital Anxiety and Depression Scale) scores. Quality of sleep was also recorded by NRSS (Non restorative sleep scale).

Any possible adverse events were monitored during the follow-up.

Results

All patients were evaluated at baseline, after 1 months and 4 months from the beginning of treatment with dupilumab.

IGA score decreased from a median value of 3,5 at the baselines to a median value of 2,5 after 1 month. IGA score equal to 0 or 1 (clear/almost clear) was reached in 45 % of the patients (5/11) after 4 months.

Patients showed rapid clinical improvement with reduction of infiltration and lichenification; no more other nodular lesion was reported during treatment and lesions decreased in size and number. All patients reported a marked reduction of itching during all their daily activities already after the first month of treatment (median baseline NRSi 8 Vs median NRSi 4 after 4 months).

Consequently, these clinical improvements were also reflected in a better sleep quality achieved by all the patients as demonstrated by reduction of value in NRSS scale which were equal to 6 (median value) at baseline, then reducing to 3 (median value) after 1 month and finally got a value of 1 (median value) after 4 months.

Overall, our patients presented benefits in all aspects of their life during therapy.

This is demonstrated by positive variation of different score scales collected and analyzed during all follow-up.

Quality of life improvement was measured by DLQI score: baseline median value was 12 (range 28-1) Vs median value of 8 after 1 month (range 18-2) and finally median value equal to 6 after 4 months (range 13-2).

Atopic eczema severity was also monitored as illness experienced by the patient through

POEM. As well as DLQI scores reduction, POEMS scores have decreased from baseline values of 22 to 15 after 1 month and then median POEM 12 on 4th months.

Psychological impact of atopic eczema in our patients was investigated by HADS scores whose improvements appeared slower than other scores (median HADS baseline was equal to 8 D – 8 A Vs to 7 D – 7 A after 1 month Vs 6 D – 5 A at the end).

Probably, the long duration of atopic dermatitis in these patients and all psychophysical consequences of this condition need more time for better improvements.

Just one adverse event was recorded among our patients. As already described by Fowler et al (4), 1 patient presented an acute arising of psoriasiform dermatitis after first injection of dupilumab, but it was a transitory dermatitis with spontaneous resolving after second drug somministration.

Discussion

To our knowledge, our study represents the largest case series of patient with atopic phenotype of PN-like treated with dupilumab in all literature.

Our findings show the effectiveness of dupilumab in this clinical setting of AD supporting this treatment as a valid therapeutic approach in difficult-to-treat-PN-like clinical presentation of AD.

Otherwise, additional studies with longer follow-up are needed.

Follow-up of our patients is yet under investigation and we trust in more clinical benefits for this condition.

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Figure 1. Clinical presentation of a patient before dupilumab therapy.



Figure 2. Remission of cutaneous lesions after 4 months from the beginning of therapy with dupilumab.