CASE REPORT

Management of Youth Psoriatic Arthritis with Etanercept: A Case Report

Authors
[#1]Esther Bastos Palitot, [2]Guilherme Bastos Palitot de Brito, [3]Alessandra de Sousa Braz, [#4]Claudio Roberto Bezerra-Santos

Affiliations
[1]Professor of Dermatology, Head of Reference Service for Psoriasis, Federal University of Paraiba (UFPB), Medical Science Centre, LauroWanderley Hospital Ebserh/UFPB, Joao Pessoa, Brazil
[2]Resident Doctor, Federal University of Rio Grande do Norte (UFRN), Natal, Brazil.
[3]Professor of Rheumatology, Spondyloarthritis Clinic, Federal University of Paraiba (UFPB), Medical Science Centre, LauroWanderley Hospital Ebserh/UFPB, Joao Pessoa, Brazil
[4]Associate Professor of Immunology, Department of Physiology and Pathology, Health Science Centre, Laboratory of Immunopharmacology, Federal University of Paraiba (UFPB), Joao Pessoa, Brazil

[#] Both authors contributed equally

Correspondence:
Laboratory of Immunofarmacology,
Federal University of Paraíba, João Pessoa, Paraiba, Brazil.
Email: crbezerra@ltf.ufpb.br

Abstract

Psoriatic arthritis (PsA) is an immune-mediated inflammatory disease of the skin and joints still poorly understood in pediatric patients. It has been reported a case report of PsA in a male infant patient in Paraiba state, Northeast Brazil. The goal of this study was describing a rare case of juvenile PsA and its management upon using classical and biological treatment based on the drug etanercept. The patient was diagnosed with scales on the scalp, knees and other parts of the body and joint inflammation besides social behavior deficit since he was aged 5. Classical therapy to PsA including acitretin and topical glucocorticoids did not ameliorate the illness symptoms. Then, the patient received the anti-TNF-α drug etanercept used to treat moderate to severe psoriasis and juvenile rheumatoid arthritis. Before the week 16 of the treatment was observed a strong remission of the symptoms which is related to the inhibition of the inflammatory response into skin and joints. Besides no side effects was observed during etanercept administration.

Keywords: Juvenile patient, psoriatic arthritis, biologic therapy

1. Introduction

Psoriatic arthritis (PsA) is known as chronic inflammatory disease affecting skin, joints and presents high genetic polimorfism[1]. Prevalence of PsA is 2-3% population worldwide and correlates with several comorbidities[2,3]. This condition has been described as mediated by T helper cell type 17 (Th17) immune response characterized for increased levels of several proinflammatory cytokines such as interleukin (IL)-1, IL-6, IL-8, IL-17, tumor necrose factor-α (TNF-α) and a rich leukocyte recruitment mainly neutrophils into joints and skin lesions[4].

PsA has been diagnosed in children with prevalence of 0.5-1% and might be related to high severity and caused by different factors such as stress response, trauma and respiratory infection[5]. Joint inflammation is a clinical manifestation also observed in psoriatic patients which is characterized by oligoarticular lesions in the earlier stages of the disease as well as enthesitis and spinal symptoms[6].

Classical therapy for psoriasis (PsO) is based on phototherapy, topic therapy (i.e. glucocorticoids), disease-modifying antirheumatic drugs (i.e. methotrexate) and biologics[7]. In the last years, anti-TNF-α therapy use has been increased to treat immunologically chronic inflammatory diseases such as rheumatoid arthritis, PsO and its different clinical manifestations[8]. In this context the use of etanercept described as TNF-α-receptor antagonist has been reported as an effective treatment to PsO in adults and children, however only few studies have reported the etanercept as useful treatment in PsA in juvenile patients[9].

In this report we describe a rare case of a juvenile male patient with vulgar PsO and joint inflammation since he aged 5. Of note, the patient was no responsive to classical topical and systemic therapies but showed an excellent recover upon etanercept administration.

2. Case Presentation

2.1 Clinical, radiographic, histological and serological investigation

The patient was born at the capital João Pessoa, Paraiba state, northeast Brazil. His first consultation was adressed when he was 10 in 2012 at the Reference Service for Psoriasis from LauroWanderley Hospital from Federal University of Paraiba (UFPB) and the case report data publishing was approved by the Ethic Committee (protocol no. 56330916500005183) from Medical Science Centre/UFPB. Skin and joint lesions were described by his mother as scales on the scalp and he developed skin plaques on the knees aged 8 and then it was spread to other body parts such as hands and feet.

There were no report symptoms of PsO and PsA on the family by mother side however the father relatives were unknown. His mother reported the patient was not attending school because he was suffering discrimination by his schoolmates and staff besides he had a poor social and family relationship. During clinical examinations the patient reported pain in the fingers and toes associated with loss of movements. Other body parts lesions were observed as scales on hands, arms, legs and dorsal region and thick scales on the scalp (Figure 1a,b).

The osteoarticular system analyses showed fourth and fifth finger retraction and narrowing of the second left finger as well as a dactylitis in the fourth and fifth left finger (Figure 1a,b). Radiographic examinations showed a left-fifth deviation and destructive injuries in the toes but no hand alterations were observed. Histological test demonstrated the presence of acanthosis, paraceratosis,

papillomatosis, neutrophils in the corneous layer, angiogenesis and inflammatory infiltrate in the dermis. Additionally, none ophthalmologic alteration was observed. Serological and gene expression tests were carried out to address inflammatory markers such as rheumatoid factor and PPD (absent), C reactive protein test (equal to 17) and HLA B27 (absent). Additional routine blood examinations were not altered.

In order to reach the symptoms control, classical therapy based on topical (clobetasol propionate and betamethasone) and systemic drugs were used to reduce plaque numbers and joint pain but no protective effect was observed. Similarly, treatment with acitretin 10 mg per day for two months failed to attenuate skin and joint symptoms. Considering the severity of the clinical manifestations and comorbidities such as psychological stress, poor quality of life and lack of response to classical therapies it was decided to introduce the biologic drug etanercept 0.8 mg/kg via subcutaneous route for 16-week period.

2.2 Clinical course

Patient showed a progressive amelioration of the symptoms presenting a significant Psoriasis Area Severity Index (PASI) reduction followed by diminishing of scalp and skin lesions and knee pain (Figure 1c). Recover of PsA symptoms have allowed the patient come back to social and scholar activities. Of note no side effects were observed during the treatment period.

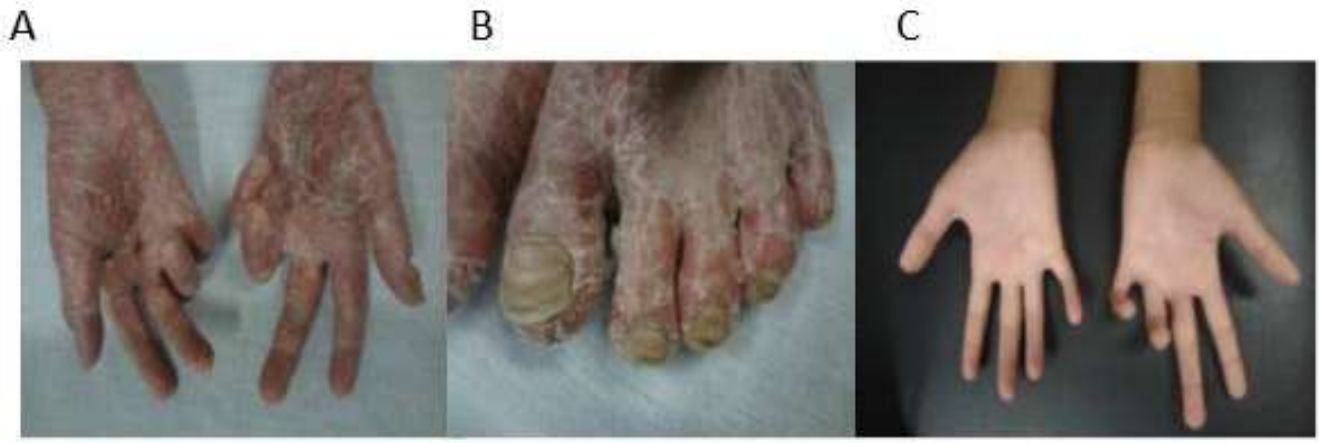

Figure 1. Skin and joint lesions regression in PsA patient treated with etanercept. A juvenile patient was diagnosed with skin and joint lesions on the (a) hands and (b) feet. The regression of the plaques was reached (c) upon etanercept 16-week treatment period.

3. Discussion

It has been described a case report of a juvenile patient with PsA strongly attenuated by etanercept administration. The patient symptomatology was characterized by scales on the scalp, knees and other part of body besides joint pain. Radiographic examinations and histological test showed important features of PsA which explain skin inflammation and joint pain caused by arthritis development. Serological test revealed increased C reactive protein levels which correlate to inflammatory aspect of PsA but absence of genetic factor HLA-27. Lack of response to classical therapy

led the medical team to introduce biological treatment which caused an effective lesion regression.

It is well described in the literature that plaque formation is the main characteristic in PsA patients and the skin manifestations are plotted in elbows, knees, scalp and lumbar area[10]. Skin and joint lesions also have been reported as related with genetic profile including genes associated to antigen presentation, T cell development, T cells polarization, innate immunity and immune regulation[11]. The use of topical treatment is the first line in PsO therapy[12] however topical corticosteroids administration has caused no beneficial effects in this case. Similarly, classical systemic drug acitretin has been reported as able to diminish PsO skin lesions[13] but the use of this medication also has shown ineffective to ameliorate the patient symptomatology.

Biological therapy emerges as a crucial alternative for psoriatic patient refractory to classical medication. In the current case, etanercept injections strongly reduced skin and joint manifestations up to 16-week treatment period although clinical symptoms came out three months upon the treatment interruption. This data indicates that etanercept is able to block the pro-inflammatory TNF-α effect on skin and joints to prevent plaque formation and inflammatory pain but it was not able to maintain a long-term inhibition of the deregulated immune response related for the disease development.

Usage of biologicals has been reported to treat rheumatic pathologies and the administration of the anti-TNF-α drug etanercept in children showed a long-term efficacy and safety in juvenile idiopathic arthritis (JIA)[14]. Recent study has described the usage of etanercept in children and adolescents to treat chronic skin disorders including PsO and its clinical manifestations[15]. Also, etanercept (0.4 mg/kg, subcutaneously, twice a week for 3, 6 or 12 months) and infliximab (3-4 mg/kg, intravenously, at weeks 0, 2 and 6) strongly ameliorated refractory JIA symptoms in children[16]. Additionally, it has been largely reported that etanercept dosing regimen range from 0.8 mg/kg to 50 mg/kg weekly to treat PsO and the lowest dosage of this drug has been used in this current case report. Other biologicals such as the anti-TNF-α drug adalimumab and the anti-cytokine (IL-12/IL-23) ustekinumab also have been reported to treat PsO, PsA and other chronic inflammatory conditions[17].

PsA symptoms correlate with several comorbidities such as psychological and psychiatric symptoms in children affecting life quality and respiratory infection development justifying an urgent necessity for treatment[18]. Inflammation in PsA patients is caused by immune response deregulation triggered by different stimuli as stress, obesity, allergens, streptococci infection, yeast colonization, toxins, dust and drugs[19]. Psoriatic disease development is dependent of several cell types such as dendritic cells, macrophages, T cells and keratinocytes which induce an increase of an array of pro-inflammatory cytokines[20]. In childhood, PsA affects approximately one-third of the PsO cases and it is well known that children suffering of PsA might develop cardiovascular diseases besides other chronic inflammatory illness as Crohn's disease and obesity[21].

The treatment of a psoriatic infantile is challenging once it might impact in physical development and body metabolism which are different from the adult patients. However, the inhibition of the chronic inflammation is pivotal to control the illness symptoms to

prevent keratinocytes proliferation and plaque formation on the skin and edema formation into the joints[22]. In addition to the efficacy of etanercept in PsO, this drug also has been described to control PsA symptoms in adults which include prevention of future radiographic disease progression[23].

On the other hand some studies have showed a relationship between the use of anti-TNF-α therapy in PsA symptoms followed by the development of infectious such as tuberculosis and immunosuppression[24]. These events might occur due to the reduction of the inflammatory response elicited by immune cells as macrophages against microorganisms colonizing the airways[25]. However, in this case report no side effect related to the lack of the immune system ability to react to pathogens were observed confirming the success of the treatment protocol.

In summary it has been presented a rare youth psoriatic arthritis case of difficult control by classical treatment and well managed under the biologic drug named etanercept classified as potent anti-TNF-α therapy.

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