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Journal

Dermatology Online Journal, 20(5)

Authors

Chiriac, Anca
Ferariu, Dan
Solovan, Caius
et al.

Publication Date

2014

DOI

10.5070/D3205022617

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Peer reviewed

Case Presentation

Improvement in severe psoriasis associated with isoniazid treatment

Anca Chiriac¹, Dan Ferariu², Caius Solovan³, Piotr Brzezinski⁴, Steven R. Feldman⁵

Dermatology Online Journal 20 (5): 11

¹University Apollonia, Nicolina Medical Center, Department of Dermatology, Iasi, Romania

²Pathology Department, "Gr T Popa" University of Medicine and Pharmacy, Iasi, Romania

³Dermatology, University of Medicine and Pharmacy "Victor Babes", Timisoara, Romania

⁴Dermatology, 6th Military Support Unit, Ustka, Poland

⁵Center for Dermatology Research, Departments of Dermatology, Pathology and Public Health Sciences; Wake Forest School of Medicine; Winston-Salem, North Carolina

Correspondence:

Piotr Brzezinski, MD PhD
Department of Dermatology, 6th Military Support Unit,
os. Ledowo 1N, 76-270 Ustka, Poland
mob: +48692121516
fax: +48598151829
e-mail: brzezoo@wp.pl

Abstract

A 67 year-old man was diagnosed 10 years ago with severe plaque psoriasis and was hospitalized for re-evaluation of therapy. He was treated previously with topical corticosteroids, methotrexate, and phototherapy. As part of the assessment protocol for initiation of biological treatment, a tuberculin skin test was done, which was positive without signs of active tuberculosis. Isoniazid therapy was started with marked improvement of psoriatic lesions before biologic treatment could be initiated.

Case synopsis

A 67-year-old man, with a history of 10 years of plaque psoriasis treated intermittently with topical class II and III topical corticosteroids, was seen in November 2013 for worsening disease. He was a retired person, diagnosed a few years before with essential hypertension and hypercholesterolemia, well managed with statins and renin-angiotensin inhibitors. The patient was treated previously for psoriasis with methotrexate and phototherapy for short periods of time without good clinical response. He abandoned all phototherapy and systemic treatment and he reported continued self-medication with topical corticosteroids applied intermittently for many years.

He sought dermatological treatment owing to development of extensive facial lesions with no response to topical medication. Dermatological examination revealed generalized plaque psoriasis, PASI=32, and no other skin lesions (Figure 1A). Psoriatic arthritis was excluded by rheumatologic examination. Laboratory investigations included white blood cell count 12.700/mm³, with lymphocytosis and eosinophilia (12%). We found no explanation for the eosinophilia despite exhaustive investigations including: stool examination for ova and parasites, elimination of drug intake, and allergic tests. No neoplastic disease was found.



Figure 1. Severe psoriasis that improved with isoniazid: **A.** There was severe facial psoriasis present in November 2013. **B.** The eruption was markedly improved in association with the isoniazid treatment by December 2013.

Evaluation in preparation for biological treatment included: normal thoracic radiography, a tuberculin skin test that was positive (TST with 22 mm induration), and a positive QuantiFERON-TB Gold In-Tube assay. Active tuberculosis was excluded but prophylactic therapy with isoniazid, 300mg/day for nine months was recommended by a pulmonologist.

Treatment with isoniazid was started in November 2013. It was the only new medication the patient reported taking while awaiting approval for biologic therapy. The patient reported having stopped the use of topical corticosteroids and replaced them with emollients. At the end of December 2013 he was seen again, at which time he reported taking isoniazid and no new psoriasis treatments. The eruption was markedly improved; he had no pruritus, PASI was 10, and the lesions on the face had almost disappeared (Figure 1B). His elevated white blood cell count normalized and the decision to start biologic therapy was postponed.

The improvement in the psoriasis with isoniazid administration is intriguing. Other antibiotics— macrolides in particular—have been used for psoriasis with at least anecdotal reports of improvement. Macrolide antibiotics have both anti-inflammatory and immune-modulatory properties and are widely used in guttate psoriasis, especially in children. A number of immunomodulatory effects of macrolides have been reported including effects on phagocytosis, chemotaxis, and release of cytokines [1]. Macrolide antibiotics are considered “steroid-sparing” agents and are used to treat inflammatory respiratory diseases [2]. In psoriasis, macrolides may inhibit the production of proinflammatory cytokines— such as IL-6, IL-8, and tumor necrosis factor (TNF)— and reduce neutrophil activity [3]. Clinical trials of macrolides for psoriasis have provided conflicting results [4,5]. Marked improvement of psoriasis lesions occurred in our patient after introducing prophylactic antibiotic therapy for tuberculosis with isoniazid for only 6 weeks. A case of erythrodermic psoriasis showing improvement with isoniazid treatment was published in 2011[6] (Table 1).

Table 1: Comparison of our case to another patient with psoriasis who responded to isoniazid treatment

Our patient	Brazilian patient[6]
67 year-old Caucasian man	83 year-old Caucasian woman
Generalized plaque psoriasis, PASI 32	Erythrodermic psoriasis, PASI 14.6
TST/PPD of 22 mm	PPD of 16 mm, no active tuberculosis
Isoniazid 300mg/day for nine months	Isoniazid 300mg/day for six months
The lesions almost disappeared in 6 weeks	“Complete regression after 90 days”

Isoniazid is one of the most efficient drugs for the treatment of *Mycobacterium tuberculosis* infection, but its apparent effect on psoriasis is difficult to explain. Possible explanations include direct anti-inflammatory and immune-modulatory properties of isoniazid (similar to macrolides). In addition isoniazid may affect bacterial flora in such a way as to indirectly affect the immune system.

Further well-designed, randomized controlled trials are required to determine the existence of effects of isoniazid in psoriasis.

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