

25-hydroxyvitamin D Deficiency, the Neglected Culprit: A Case Report

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Abstract

In this case report, a 31 year old African American female, presented with ongoing complaints of a skin rash, inflammation, fatigue and chronic joint pain. The patient's initial complaints were of inflammation and sloughing of her oral mucosa, which was generally accompanied by pruritic skin lesions. Previous tests included an oral swab for Herpes Simplex Virus (HSV) 1, which was negative, a skin biopsy which revealed interface dermatitis with focal confluent in the presence of epidermal keratinocytes and associated subepidermal clefting, and blood tests to determine the source of the reaction. These test included rapid plasma reagin (RPR) (*non-reactive*), Epstein-Barr virus (EBV) (*VCA-IgM was negative, VCA-IgG and EBNA antibody were positive*) and Human Immunodeficiency Virus (HIV) (*negative*). New symptoms also included chronic fatigue and debilitating joint pain. Tests were ordered which included a Westergren erythrocyte sedimentation rate (ESR) and antinuclear antibodies (ANA), which were abnormally elevated. The patient was referred to a rheumatologist. Follow-up tests included C-reactive protein (CRP) (*4.1 mg/L*), ANA (*positive*), ESR (*45 mm/hr*) and 25-hydroxyvitamin D (*20.0 ng/mL*). The patient was given a prescription of high dose vitamin D supplementation, but declined inflammatory treatment. A telephone follow up revealed resolution of all symptoms after three days of treatment with vitamin D supplementation. A six-month follow up reveal full resolution of symptoms beginning vitamin D supplementation. Tests results included CRP (*4.3 mg/L*), ANA (*negative*), and ESR (*22 mm/hr*). The one-year follow up revealed no complaints or symptoms and normal test results. Vitamin D supplementation was discontinued and the patient remained symptom-free. Studies have shown that vitamin D deficiency is known to cause both skeletal and non-skeletal diseases. Non-skeletal diseases include inflammatory diseases, as well as, autoimmune diseases. It has been proven beneficial to test for vitamin D deficiency when inflammatory or autoimmune diseases are suspected.

Introduction

Studies have shown that vitamin D deficiency is known to cause both skeletal and non-skeletal diseases such as inflammatory diseases, as well as, autoimmune diseases.¹⁻⁸ It has been proven beneficial to test for vitamin D deficiency, especially when inflammatory or autoimmune diseases are suspected.⁹

Background

Vitamin D studies have shown that vitamin D has the ability to inhibit the development of autoimmune diseases by regulating the immune system.¹⁰ Vitamin D is capable of regulating the immune system due to its direct relationship with the immune system. Vitamin D receptors are located within multiple cells, including cells of the immune system.¹¹ This case illustrates complications of inflammatory and possible autoimmune disease. With the administration of vitamin D supplements, this patient's immune system was regulated without any further complications. Devoid of testing for blood levels of 25-hydroxyvitamin D, this patient would have possibly consumed anti-inflammatory and autoimmune medicines which may potentially cause further complications.

Methods

Multiple laboratory tests were requested by a general physician. After increasing symptoms and complaints, the physician performed immunological testing. Upon referral to a specialist, the patient's vitamin D status was revealed.

Diagnostic Testing

Test Ordered	Initial Tests Results	Referral Test Results	6 Months Post Supplementation Test Results
HSV 1	Negative		
RPR	Non-reactive		
EBV VCA-IgM	Negative		
EBV VCA-IgG	Positive		
EBV EBNA	Positive		
HIV	Negative		
Skin biopsy	interface dermatitis with focal confluent in the presence of epidermal keratinocytes and associated subepidermal clefting		
ESR	46 mm/hr	45 mm/hr	22 mm/hr
ANA	Positive	Positive	Negative
CRP		4.1 mg/L	4.3
25-hydroxyvitamin D		20.00 ng/mL	42.03 ng/mL

Conclusion

An insufficient Vitamin D status has been associated with multiple disease states such as cancer, cardiovascular disease, diabetes, inflammatory diseases and well as autoimmune diseases. After the initial tests failed to directly lead to a diagnosis, more tests were requested. Fortunately for this patient, a test to detect levels of 25-hydroxyvitamin D was performed. Treatment of prescription vitamin D lead to the stabilization of vitamin D levels, as well as, inflammatory biomarker which led to a full resolution of the patient's symptoms. Testing for vitamin D also prevented the unnecessary treatment for an inflammatory disease.

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