Lyme Hastalığı Tedavisinde Destek Ürünler

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healthcare

MDPI

Review

Neur … with Clini … erview

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Abstract: There is increasing evidence and recognition that Lyme borreliosis (LB) causes mental symptoms. This article draws from databases, search engines and clinical experience to review current information on LB. LB causes immune and metabolic effects that result in a gradually developing spectrum of neuropsychiatric symptoms, usually presenting with significant comorbidity which antimicrobial and other treatments can improve recovery.

Future studies to clarify the pathophysiology and look more at the prevalence of these infections in patients with identified neuropsychiatric impairments can improve understanding of the causes of mental illness and violence and result in more effective prevention, diagnosis and treatment.

Sir William Osler, the father of American Medicine said "He who knows syphilis knows medicine." It can now be said that He who knows Lyme borreliosis knows about medicine, neurology, psychiatry, immunology, psychoimmunology, neurochemistry, ecology, epidemiology, entomology, law, politics, and ethics.

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Acknowledgments: The author would like to acknowledge the contributions from all his patients who provided a description and insight about their illness that will educate and help others.

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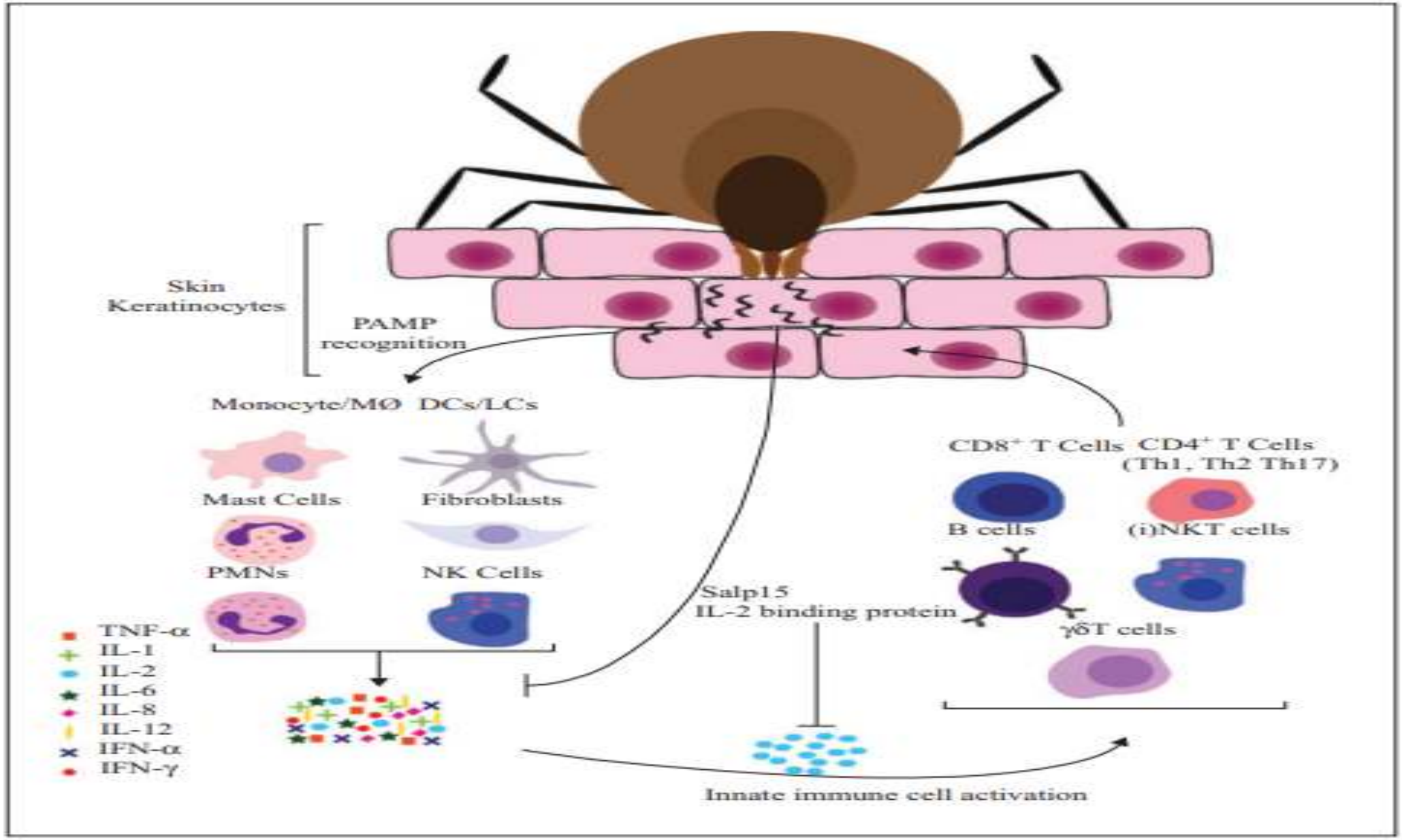

Verhaegh D, Joosten LAB, Oosting M. The role of host immune cells and Borrelia burgdorferi antigens in the etiology of Lyme disease. Eur. Cytokine Netw. 2017; 28(2) : 70-84 doi:10.1684/ecn.2017.0396

ANTİOKSİDANLAR

- Glutatyon
- Silymarin
- Bentonit kil
- Üzüm çekirdeği ekstresi
- Ecknolia cava
- Quercetin
- Klorofil
- Vitamin A

Glutatyon

PNAS

Role of glutathione metabolism in host defense against *Borrelia burgdorferi* infection

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Contributed by Charles A. Dinarello, January 18, 2018 (sent for review December 7, 2017; reviewed by Pietro Ghezzi and Georg Schett)

SİLYMARİN

Devedikeni

Siroz, toksik kimyasallar ve alkole bağlı yağ infiltrasyonu ve hepatit gibi çeşitli karaciğer hastalıklarında yaygın olarak kullanılan karaciğer koruyucu bir ajandır.

Etki mekanizması:

- 1. Glutatyon (GSH)'un intrasellüler içeriğini düzenleyerek serbest radikal temizleyicilerle birlikte lipit peroksidasyonuna karşı etki gösterir.
- 2. Hepatotoksik ajanların hepatositlere girmesini önleyen hücre membranı stabilizatörü ve permeablite düzenleyicisi olarak davranır.
- 3. Karaciğer rejenerasyonunu artırıp RNA polimerazın aktivitesini uyarıcı etki yapar.
- 4. Karaciğer stellate hücrelerinin (ito) miyofibroblastlara transformasyonun inhibe ederek siroza neden olan kollajen fibrillerin artışına engel olur[4].
- 5. Glukuronidasyonu artırır ve glutatyonun tükenmesinin önler,
- 6. Toksik etki ile bozulmuş immün sistemi düzenler

Kocaman N, Dabak Ö. Hepatoprotektif bir ajan: Silymarin. Fırat Tıp Derg/Firat Med J 2015; 20(3): 128-132

Bentonit Kil

- Bir tür volkanik kil çeşididir.
- İçeriğinde bulunan elektromanyetik negatif yük sayesinde bakteriyel ve toksik maddeleri vücut dışına atmak için kullanılır.
- Toksinleri, pestisit ve herbisitleri bağlar. Aflatoksin ile karşılaştırılan çalışmalarda daha etkin bulunmuş. Besinlerin mineral ve vitaminlerinin emilimini etkilemez.
- Diyarede (viral, gıda allerjisi, spastik kolit, gıda zehirlenmesi) %97 etkinlik.
- Fare deneylerinde hiperkreatinemili farelere verilmiş. Kreatin emilimini ve GIS'ten atılımını arttırarak serum kreatinini azalttığı gösterilmiş.
- Dirençli patojenler için umut vaadettiği belirtilen antibakteriyel etkinliğe sahip.
- RBC proliferasyonu ve antikor yanıtını arttırdığı in vitro olarak gösterilmiş. Bu şekilde immunmodulasyon sağlayabilir.
- Tiroksin ve tiroiyodotirenin absorbsiyonunu azaltır (in vitro).
- Yan etkiler: in vitro olarak bazı hücrelerin lizisini arttırdığı gösterilmiş. Toksisitesinde hipokalemi ve hipokromik anemi bildirimleri mevcut.

Moosavi M. Bentonite Clay as a Natural Remedy: A Brief Review. Iran J Public Health, Vol. 46, No.9, Sep 2017, pp.1176-1183

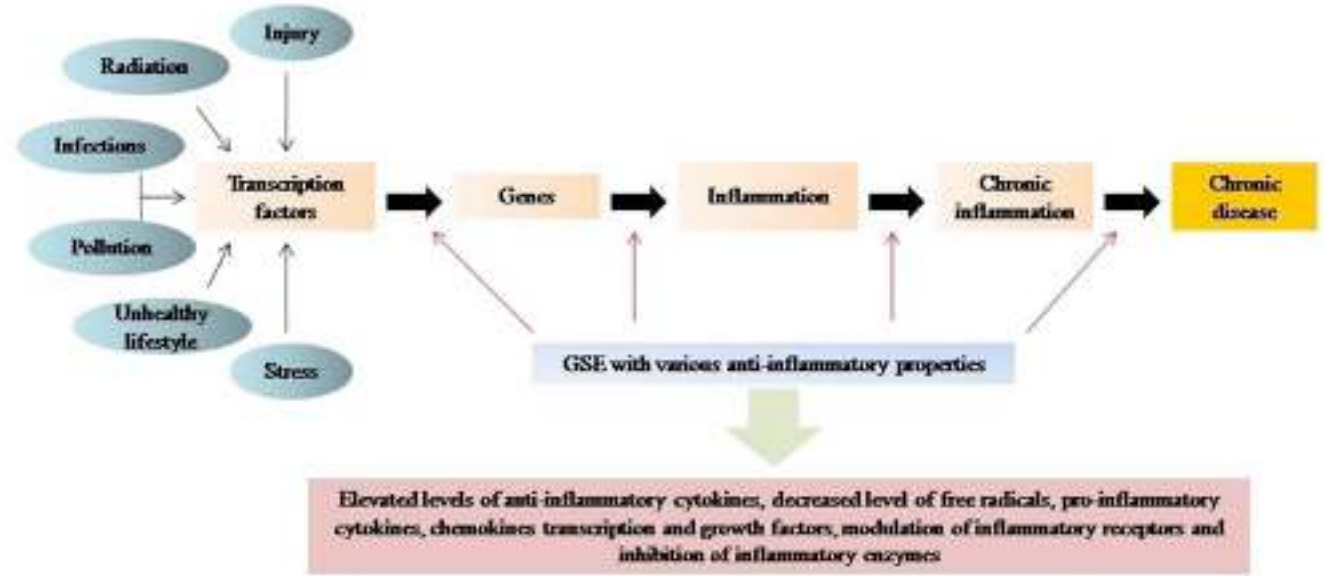
Grape seed extract (Üzüm çekirdeği ekstresi)

- İyi bilinen antioksidanlara (C vit, E vit, beta karoten) kıyasla daha yüksek antioksidan aktivite
- Alfa linoleik asit
- Anti inflamatuar
- Anti apopitotik
- Anti nekrotik
- Anti kanserojenik
- Oksidadif stresi azaltır
- Yara iyileşmesini hızlandırır

Table 1 Various studies on GSE for wound healing

SI no.	Methods	Benefits	References
1	Excision wound model in rats	Reduction of wound area, Faster wound healing	Nayak et al. (2010, 2011)
2	Ani… lac…		
4	Tiss… im…		
5	Che…		
6	Fatty… pr… (O… ca… an…		
7	CP-i…		
8	Oxy…		
9	Oxi… Live… st…		
11	Anti…		
12	Mar… plasma concentrations of alpha-tocopherol	membranes and antioxidant protection	(2002)
13	Protective effect of DMGS on toxicity induced by Adriamycin (ADR) in isolated rat hepatocytes; lactate dehydrogenase (LDH) release to estimate cytotoxicity; thiobarbituric acid reactant substances (TBARS) and carbonyl group levels were measured as biomarkers of oxidative stress, ATP and GSH levels as estimation of intra-cellular effect	Provide cell membrane protection against oxidative damage and consequently prevents lipid and protein oxidation	Valls-Belles et al. (2006)

J Food Sci Technol (April 2020) 57(4):1205–1215



Ecknolia cava

- Uzak doğuda yetişen su yosunudur.
- Antioksidan
- Nöroprotektif
- Parkinson ve Alzheimer hastalığında kullanımı mevcut

Shin YS, Kim KJ, Park H et al. Effects of Ecklonia cava Extract on Neuronal Damage and Apoptosis in PC-12 Cells against Oxidative Stress. J. Microbiol. Biotechnol. 2021. 31(4): 584–591 https://doi.org/10.4014/jmb.2012.12013

Quercetin

- Hayvan hücresinde;

TNFalfa ve IL-1alfa inhibisyonu, apopitotik nöronal hücre ölümünü azaltarak ve siklooksijenaz, lipooksijenaz inhibisyonu yaparak antiinflamatuar etki.

- İnsan hücresinde;

anti-alerjik, anti inflamation. Hücre hasarına karşı koruma, gastrointestinal hücre koruyucu

Li Y, Yao J, Han C, et al. Quercetin, inflammation amd immunity. Nutrients 2016, 8, 167; doi:10.3390/nu8030167

Klorofil

- Deneysel çalışmalarda aflatoksinin indüklediği kanserojen etkiyi azalttığı gösterilmiş.

Egner PA, Munoz A, Kensler TW. Chemoprevention with chlorophyllin in individuals exposed to dietary aflatoxin. Mutat Res. 2003 Feb-Mar;523-524:209-16.

Vitamin A

Vitamin A Deficiency Exacerbates Murine Lyme Arthritis

Margherita T. Cantorna and Colleen E. Hayes *Department of Biochemistry, University of Wisconsin-Madison*

Vitamin A deficiency predisposes the host for a strong inflammatory response, suggesting that it may foster susceptibility to diseases, such as Lyme arthritis, in which activated macrophage and inflammatory cytokine production are pathogenic. Infected mice had a rapid serum retinol decline that correlated with the onset of arthritis. The mice with the least retinol developed acute arthritis earlier and more severely than those with the highest retinol. Earlier and stronger interleukin (IL)-12, interferon-γ (IFN)-γ, and tumor necrosis factor responses were found in *Borrelia burgdorferi*–infected, vitamin A–deficient mice compared with controls. The spirochetes induced IFN-γ secretion from unprimed cells, and retinoid addition in vitro inhibited IFN-γ synthesis. Vitamin A deficiency may exacerbate acute Lyme arthritis by enhancing an acute arthritogenic inflammatory response initiated by spirochete-driven IFN-γ secretion. Conversely, vitamin A may lessen acute Lyme arthritis pathology by blocking IFN-γ and IL-12 synthesis.

J Infect Dis. 1996 Oct;174(4):747-51. doi: 10.1093/infdis/174.4.747.

PMID: 8843212 DOI: 10.1093/infdis/174.4.747

Jarisch Herxheimer Reaksiyonu

- Gram-negatif enfeksiyonları tedavi ederken antibakteriyellerin başlatılmasından sonra ortaya çıkar . İlk dozdan sonra 1-3 saat içinde genellikle ateş , titreme , hipotansiyon , baş ağrısı , taşikardi , hiperventilasyon , vazodilatasyon ile ateş basması , kas ağrıları, deri lezyonları ve anksiyete.
- Reaksiyonun yoğunluğu inflamasyonun (TNF-α, IL-6,8) şiddetini gösterir . Reaksiyon genellikle ilacın verilmesinden sonraki 2 saat içinde ortaya çıkar ve genellikle kendi kendini sınırlar.

Jarisch Herxheimer Reaksiyonu önlemek için:

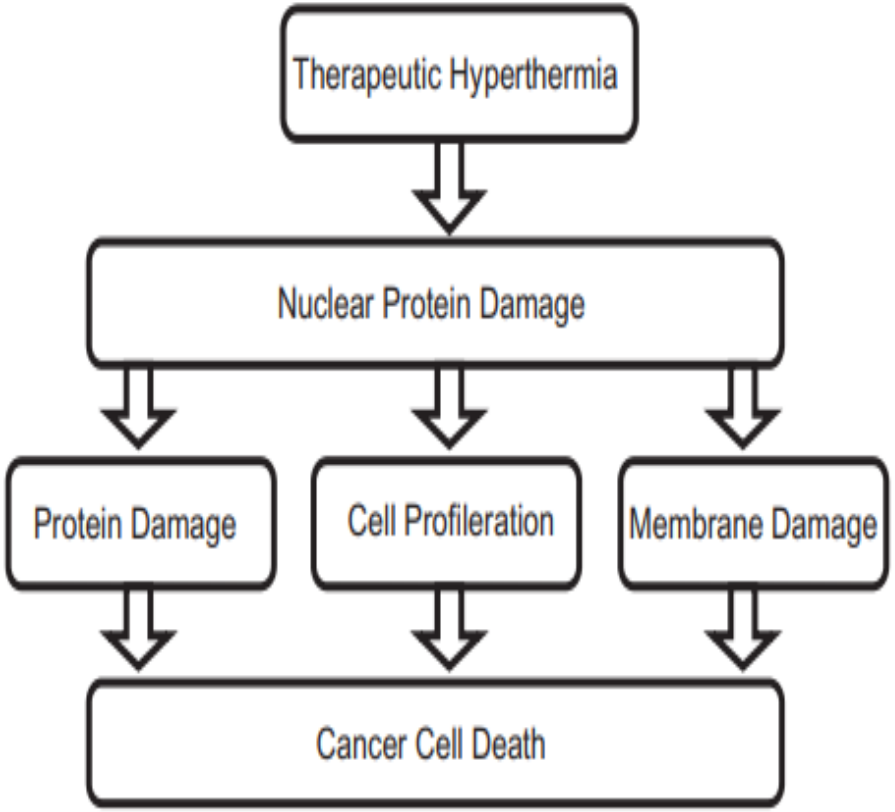
- Curcumin
- Resveratrol
- Yeşil çay ekstraktı
- NAC
- ALA
- Multivitamin

Jarisch Herxheimer Reaksiyonu gelişirse:

- Glutatyon (oral liposomal) 500 mg 2*1

  (verilemiyorsa NAC+ALA)
- Quercetin
- Ecklonia Cava
- Şiddetli Jarisch Herxheimer Reaksiyonu gelişirse: glutatyon iv 1200-2500 mg haftada 2 kez. Nebülizer ile glutatyon 200mg/ml 2x2

Hipertermi
40-45^{0}C
≥1 sa



Handbook of Clinical Neurology, Vol. 157 (3rd series)
Thermoregulation: From Basic Neuroscience to Clinical Neurology, Part II
A.A. Romanovsky, Editor
https://doi.org/10.1016/B978-0-444-64074-1.00053-7

Ağrı yönetimi PTLD

Review > Clin Rev Allergy Immunol. 2022 Feb;62(1):264-271. doi: 10.1007/s12016-021-08906-w. Epub 2021 Oct 23.

A Review of Post-treatment Lyme Disease Syndrome

persist for months following completion of therapy. The constellation of symptoms such as fatigue, cognitive dysfunction, and musculoskeletal pain that persist beyond 6 months and are associated with disability have been termed post-treatment Lyme disease syndrome (PTLDS), a subset of a broader term "chronic Lyme disease." Chronic Lyme disease is a broad, vaguely defined term that is used to describe patients with non-specific symptoms that are attributed to a presumed persistent Borrelia burgdorferi infection in patients who may or may not have evidence of either previous or current Lyme disease. The diagnoses of chronic Lyme disease and of PTLDS have become increasingly relevant to the practice of immunologists due to referrals for consultation or for intravenous immunoglobulin (IVIG) treatment. This review aims to explore the relationship between chronic Lyme disease, post-treatment Lyme disease syndrome, and the immune system. Here, we review the current literature on (1) issues in conventional and alternative diagnostic testing for Lyme disease, (2) the hypothesis that B. burgdorferi infection can persist despite appropriate use of recommended antibiotics, (3) current theories regarding B. burgdorferi's role in causing both immune dysregulation and protracted symptoms, and (4) the use of IVIG for the treatment of Lyme disease.

PTLD Ketamin

International Medical Case Reports Journal

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CASE REPORT

Effects of intravenous ketamine in a patient with post-treatment Lyme disease syndrome

PTLD glukokortikoid

Tjernberg et al. BMC Infectious Diseases 2010, 10:20
http://www.biomedcentral.com/1471-2334/10/20

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Mapping of hormones and cortisol responses in patients after Lyme neuroborreliosis

Ivar Tjernberg[1,2*], Martin Carlsson[1], Jan Ernerudh[3], Ingvar Eliasson[4], Pia Forsberg[2]

Abstract

Background: Persistent symptoms after treatment for neuroborreliosis are common for reasons mainly unknown. These symptoms are often unspecific and could be caused by dysfunctions in endocrine systems, an issue that has not been previously addressed systematically. We therefore mapped hormone levels in patients with previous confirmed Lyme neuroborreliosis of different outcomes and compared them with a healthy control group.

Methods: Twenty patients of a retrospective cohort of patients treated for definite Lyme neuroborreliosis were recruited 2.3 to 3.7 years (median 2.7) after diagnosis, together with 23 healthy controls. Lyme neuroborreliosis patients were stratified into two groups according to a symptom/sign score. All participants underwent anthropometric and physiological investigation as well as an extensive biochemical endocrine investigation including a short high-dose adrenocorticotropic hormone stimulation (Synacthen®) test. In addition to hormonal status, we also examined electrolytes, 25-hydroxy-vitamin D and interleukin-6.

Results: Eight patients (40%) had pronounced symptoms 2-3 years after treatment. This group had a higher cortisol response to synacthen as compared with both controls and the Lyme neuroborreliosis patients without remaining symptoms ($p < 0.001$ for both comparisons). No other significant differences in the various baseline biochemical parameters, anthropometric or physiological data could be detected across groups.

Conclusions: Apart from a positive association between the occurrence of long-lasting complaints after Lyme neuroborreliosis and cortisol response to synacthen, no corticotropic insufficiency or other serious hormonal dysfunction was found to be associated with remaining symptoms after treatment for Lyme neuroborreliosis.

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