Türkiye Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Uzmanlık Derneği

Kırım-Kongo Kanamalı Ateşi

Türkiye'de Güncel Durum, Tanı ve Klinik Yönetim

Dr. Öğretim Üyesi Caner Öksüz

Sivas Cumhuriyet Üniversitesi
Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı

Kırım-Kongo kanamalı ateşi

Geniş bir coğrafi dağılım

Kene kaynaklı ciddi bir hastalık

%30 veya daha yüksek ölüm oranı

Hawman DW et al., Nature Reviews Microbiology, 2023

Etken ve viryonun yapısı

Kırım-Kongo kanamalı ateşi virüsü (KKKAV)

Hareavirales › Nairoviridae › Orthonairovirus
Orthonairovirus haemorrhagiae

80–100 nm çapında, küresel ve glikoproteinlerle kaplı zarflı viryon

Current ICTV Taxonomy Release | ICTV,
Kuehnert PA et al., Current Tropical Medicine Reports, 2021

Dünyada KKKA

WHO, KKKAV’yi öncelikli patojen olarak ilan etmiştir

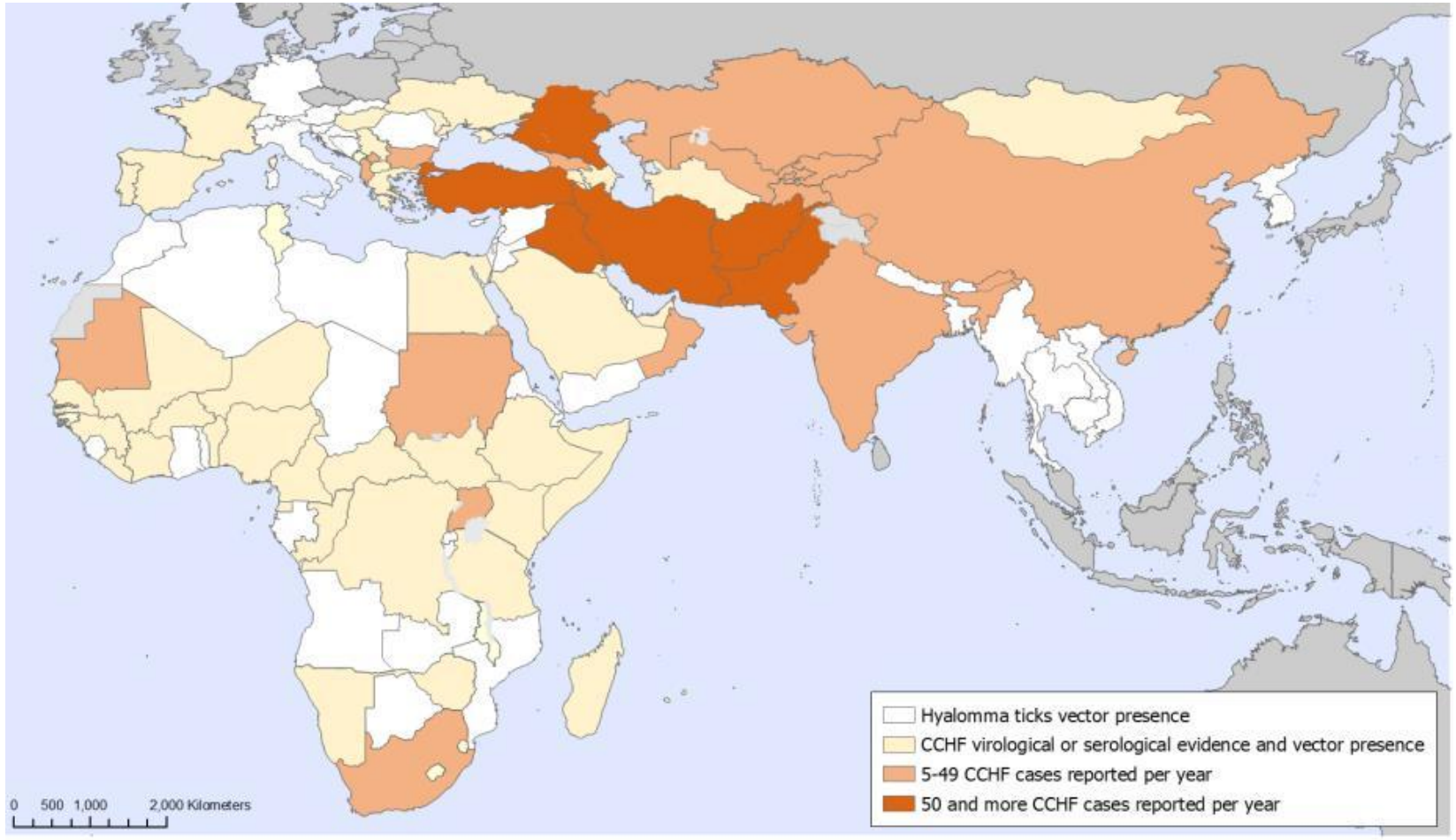
Asya, Avrupa, Orta Doğu ve Afrika'da 30'dan fazla ülkede endemiktir

Yaklaşık üç milyar insan KKKA riski altındadır

Her yıl dünya çapında yaklaşık 10.000-15.000 KKKA vakası bildirilmektedir

Kaushal N et al., Acta Tropica, 2025

KKKA’nın coğrafi dağılımı

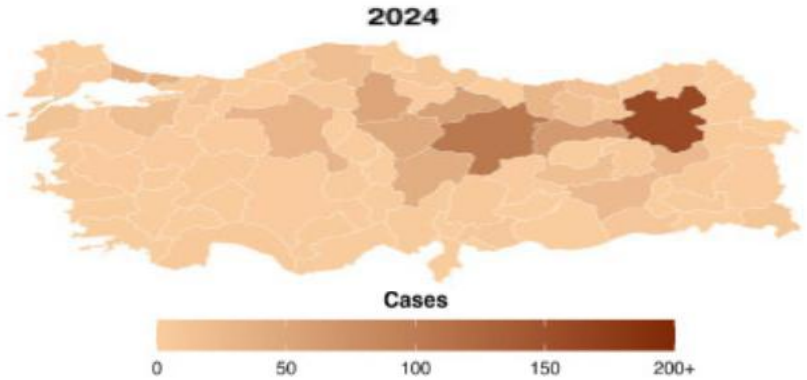


Geographic distribution of Crimean-Congo haemorrhagic fever, updated 2024

Türkiye’de ilk olgular ve hiperendemik bölge

2002 Tokat, Yozgat, Sivas ve Çorum’da dikkat çeken olgular

2003 Kesin tanının konulması



İç Anadolu’nun kuzeyi, Orta ve Doğu Karadeniz ve Doğu Anadolu’da yaklaşık 30 ili içine alan hiperendemik bölge

Türkiye Kırım Kongo Kanamalı Ateşi Vaka Yönetim Rehberi, 2025
Karanfil O et al., International Journal of Infectious Diseases, 2026

Ege'de KKKA

International Journal of Infectious Diseases (2009) 13, e431–e436

ELSEVIER

INTERNATIONAL SOCIETY FOR INFECTIOUS DISEASES

http://intl.elsevierhealth.com/journals/ijid

An outbreak of Crimean-Congo hemorrhagic fever in western Anatolia, Turkey

Bülent Ertugrul [a,*], Yavuz Uyar [b], Kamil Yavas [c], Cetin Turan [a], Serkan Oncu [a], Ozlem Saylak [a], Ahmet Carhan [b], Barcin Ozturk [a], Nermin Erol [c], Serhan Sakarya [a]

[a] Department of Infectious Diseases and Clinical Microbiology, Adnan Menderes University Medical Faculty, Aydin 09100, Turkey
[b] Refik Saydam National Hygiene Center, Virology Reference and Research Laboratory, Ankara, Turkey
[c] Provincial Health Directorate, Aydin, Turkey



one patient did not match the suspected-case criteria, though he was also included in the study as real-time PCR analysis of his blood sample was positive, confirmed by repeat analyses. Of these 26 patients, 18 were admitted to various hospitals in Aydin between April and September 2007 and eight patients between May and June 2008. All cases were indigenous–autochthonous with no history of traveling to another CCHF endemic area (e.g., eastern Anatolia) in Turkey.

Güney Marmara'da KKKA

Güney Marmara'da Kırım-Kongo Kanamalı Ateşi

Crimean-Congo Haemorrhagic Fever in South Marmara Region, Turkey

Gülçin Bölük, Tülay Özvatan-Şener, Emel Yılmaz, Halis Akalın, Reşit Mıstık, Safiye Helvacı
Uludağ Üniversitesi, Tıp Fakültesi, İnfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, Bursa, Türkiye

talığın da Kırım'dakine benzediği 1969'da anlaşılınca hastalık Kırım-Kongo kanamalı ateşi olarak adlandırılmıştır (1-3). İklim, bitki örtüsü değişimi ve yabani hayvan sayısındaki artış, kısaca doğal dengenin değişimi, hastalığın ortaya çıkmasında etkilidir (2). KKKA etkenini taşıyan kene türleri ülkemizde de bulunmaktadır. Ülkemizde ilk kez 2002'de bildirilen olgudan sonra 2009 yılı Eylül ayına kadar toplam 4435 hasta ve 217 ölüm bildirilmiştir (4). Bu yazıda kliniğimizde takip edilen ve tanısı Refik Saydam Hıfzıssıhha Merkezi'nde polimeraz zincir reaksiyonu (PCR) ve ELISA ile doğrulanan iki KKKA olgusu sunulmuştur.

Olgular

Olgu 1: Temmuz 2006'da sol kasığında kene görüp kendisi çıkaran, Çanakkale'nin kırsal kesiminde yaşayan 21 yaşındaki erkek hasta yüksek ateş ve halsizlik şikayeti ile ilk olarak bir başka merkeze başvurmuştu. İki gün sonra kliniğimizde takip edilmeye başlanan hastanın sol bacağında "tache noir" vardı. Nabzı 92/dakika, tansiyon arteriyeli 140/90 mmHg idi. Yatışından itibaren ateşi olmadı. Periferik kanda lökosit 3900/mm³ ve trombosit 101

tamamlandı. 10. günün sonunda şifa ile taburcu edildi.

Olgu 2: Haziran 2008'de kliniğimize başvuran 4 yaşında kadın hasta, bir hafta önce kene tutunması ta nımlıyordu. Bursa'nın Orhaneli ilçesinde yaşayan hast kene tutunmasından 3 gün sonra üşüme ve titremeyl yükselen ateş ve vajinal kanama başladığını ifade edi yordu. El bileklerinde simetrik eritem vardı. Periferi kanda lökosit 2920/mm³, trombosit 59 000/mm³, CK 6 Ü/lt, AST 62 Ü/lt ve LDH 503 Ü/lt olarak saptandı. Ya tışında kanama profili bakılamazken, ilerleyen günler deki takiplerinde PT 12.2/saniye, PTT %103.4 ve INR idi. Hastanın trombosit değerleri 11 600/mm³ değerine kadar gerilediği için taze donmuş plazma ve trombosi süspansiyonu, hemoglobin 10.6 mg/dl olduğundan erit rosit süspansiyonu verildi. Başka bir merkezde ribavirin ve doksisiklin başlanmış olan hastada yatışından 2 gün sonra doksisiklin kesildi. Tedavisi ribavirinle 10 güne ta mamlanıp şifa ile taburcu edildi.

İrdeleme

KKKA, Afrika, Asya, Doğu Avrupa ve Orta Doğu'da tanımlanmış öldürücü bir hastalıktır. Bildirilen ölüm

Batı Anadolu'da KKKA

Afyonkarahisar İlinde Bildirilen Kırım Kongo Kanamalı Ateşi Olgularının Özelliklerinin İncelenmesi

Investigation of the Characteristics of Crimean Congo Hemorrhagic Fever Cases Reported in Afyonkarahisar Province

Derya Korkmaz, Petek Konya, Neşe Demirtürk

Afyonkarahisar Sağlık Bilimleri Üniversitesi, Sağlık Uygulama ve Araştırma Merkezi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, Afyonkarahisar, Türkiye

Cite this article as: Korkmaz D, Konya P, Demirtürk N. Investigation of the Characteristics of Crimean Congo Hemorrhagic Fever Cases Reported in Afyonkarahisar Province. Turkiye Parazitol Derg 2022;46(3):224-7.

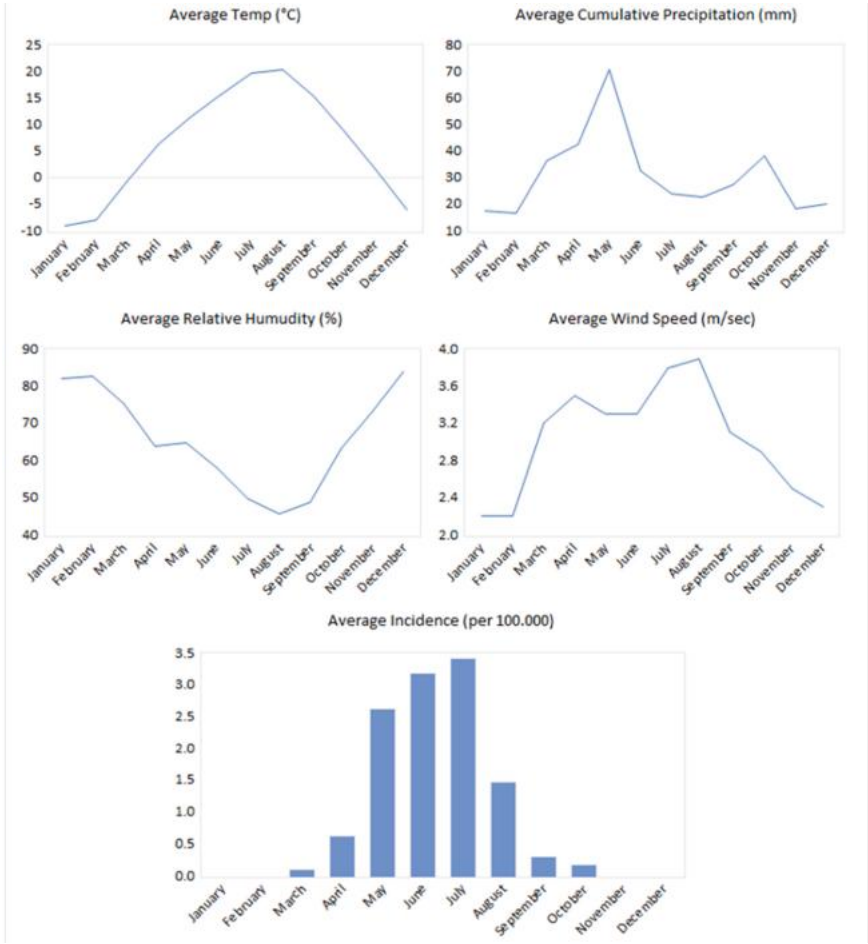
ÖZ

Amaç: Kırım Kongo Kanamalı Ateşi (KKKA); ateş, vücutta yaygın ağrı, karaciğer fonksiyon testlerinde bozulma ile seyreden; deri, mukozalarda, bazen iç organlarda kanamalara ve ölüme yol açabilen kene kaynaklı bir viral enfeksiyon hastalığıdır. Bu çalışmada, Afyonkarahisar ilinde tanı konulan KKKA olgularının klinik, laboratuvar ve epidemiyolojik özelliklerini retrospektif olarak değerlendirmeyi amaçladık.

Yöntemler: Afyonkarahisar ilinde KKKA tanısı alan hastaların demografik ve klinik özellikleri, laboratuvar bulguları, uygulanan tedaviler ve prognozları retrospektif olarak incelenmiştir.

Bulgular: Afyonkarahisar ilinde; ülkemizde KKKA'nın ilk kez görüldüğü tarih olan 2002 yılından Kasım 2019 tarihine kadar toplam 35 olgu bildirimi yapıldığı belirlendi. Otuz bir olguda kene tutunması öyküsü saptandı. Kene tutunması olguları en çok Haziran (12 olgu; %34.3) ve Temmuz (9 olgu; %2.9) aylarında görüldür. Yirmi yedi (%77.1) hastada kırsal kesimde yaşama öyküsü, 12 hastada hayvanlarla yakın temas, 4 hastada hayvan kanı ile temas öyküsü mevcuttu. Takip edilen 35 olgunun tamamı şifa ile sonuçlanmış, mortalite görülmemişti.

KKKA'nın mevsimselliği



June	3.2	15.6 ± 0.4	32.6 ± 7.2	58.1 ± 2.3	3.3 ± 0.1
July	3.4	19.8 ± 0.2	24.0 ± 5.3	49.8 ± 1.0	3.8 ± 0.1
August	1.5	20.3 ± 0.3	22.6 ± 5.3	45.6 ± 1.4	4.0 ± 0.1
September	0.3	15.4 ± 0.5	27.7 ± 6.4	48.7 ± 2.0	3.1 ± 0.1
October	0.2	8.6 ± 0.4	38.4 ± 9.1	63.4 ± 2.0	2.9 ± 0.2
November	-	1.6 ± 0.5	18.4 ± 2.4	73.2 ± 1.2	2.5 ± 0.1
December	-	−6.0 ± 1.2	20.3 ± 3.8	84.1 ± 0.9	2.3 ± 0.1

SE: Standard error.

analyses and explained 63% of the variation in incidence rates ($F = 26.793$ $p < 0.001$). The model error correction coefficient showed that the variance was low and a deviation in the balance could recapture the long-term balance in about 1 period [$CointEq(-1) = -0.975$, $p < 0.001$]. Temperature, cumulative precipitation and relative humidity in the short term, and temperature and relative humidity in the long term were essential determinants for CCHF incidence rates ($p < 0.05$ for all).

Olgular kenelerin aktif olduğu bahar ve yaz aylarında görülmektedir

Yılmaz S et al., Heliyon, 2023

Kış mevsiminde KKKA

Case Reports > Intervirology. 2011;54(3):144-5. doi: 10.1159/000319432. Epub 2010 Oct 19.

The first Crimean-Congo hemorrhagic fever case in the winter season from Turkey

Iftihar Köksal [1], Gurdal Yilmaz, Serap Iskender, Mustafa Arslan, Ilknur Yavuz, Firdevs Aksoy, Zati Vatansever

Affiliations + expand

PMID: 20948224 DOI: 10.1159/000319432

Abstract

Turkey is one of the countries in which Crimean-Congo hemorrhagic fever is frequently seen and most of the cases are reported between April and August. We describe the first case of Crimean-Congo hemorrhagic fever in the winter season, when Hyalomma tick activity is absent, from Turkey.

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ANADOLU GÜNCEL TIP DERGİSİ

Anatolian Current Medical Journal

Anadolu Güncel Tıp Derg 2019; 1(3): 77-80

Olgu Sunumu / Case Report

Kış mevsiminde görülen ve mortal seyreden bir Kırım-Kongo kanamalı ateşi olgusu

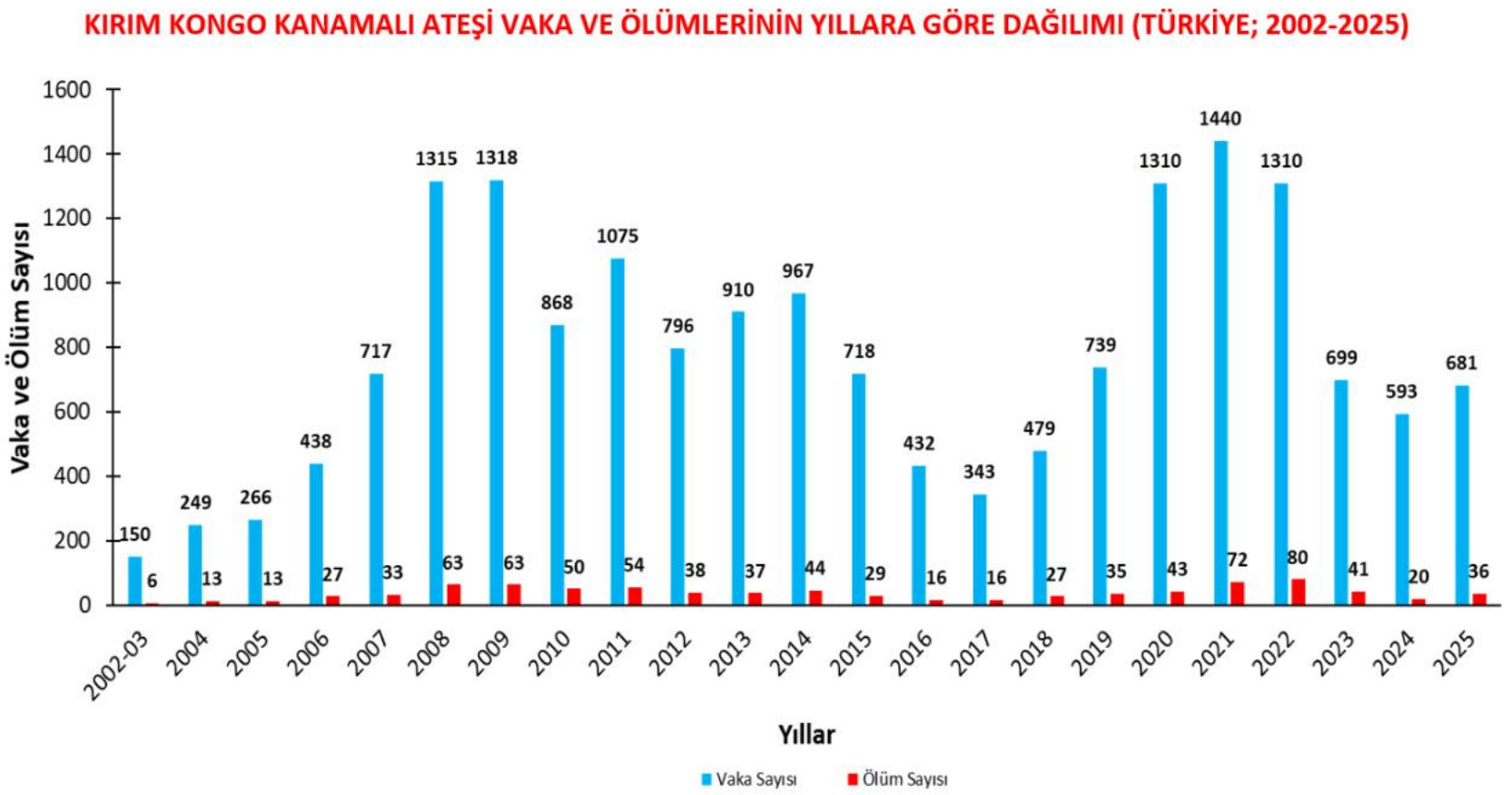
A mortal Crimean-Congo haemorrhagic fever case in the season of winter

Kader Arslan[1], Esra Kaya Kılıç[1], Salih Cesur[1], Çiğdem Ataman Hatipoğlu[1], Cemal Bulut[2], Sami Kınıklı[1]

[1]Ankara Eğitim ve Araştırma Hastanesi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Kliniği, Ankara, Türkiye
[2] Gülhane Eğitim ve Araştırma Hastanesi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Kliniği, Ankara, Türkiye

Olguların bir kısmının kış mevsiminde görülmesinin nedenleri; ılımlı kış mevsiminde kene ile enfekte olmuş kuşların veya hayvanların ülkeler arası göçü ile ilişkilendirilmiştir. Bulgaristan, Arnavutluk, Kosova ve Türkiye'de KKKA olgularının ortaya çıkmasından hemen sonra Yunanistan'da KKKA olgularının ortaya çıkması, ülkeler arasındaki sınırların yakınlığı, kene ile enfekte kuş popülasyonu ve bu hayvanların göçüne bağlanmıştır (15).

Türkiye’de KKKA: yıllara göre olgu ve ölüm



Bölgemizde artan KKKA olguları

[SS-067]

Bölgemizde Kırım–Kongo Kanamalı Ateşli Hasta Sayısı Neden Artmaktadır?

Caner Öksüz, Mehmet Bakır, Seyit Ali Büyüktuna, Nazif Elaldı, Aynur Engin

Sivas Cumhuriyet Üniversitesi Tıp Fakültesi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, Sivas

Amaç: Bölgemizde son yıllarda artışa geçen Kırım-Kongo kanamalı ateşi (KKKA) hastalarının epidemiyolojik özelliklerinin değerlendirilmesi ve olası artış nedenlerinin belirlenmesi amaçlanmıştır.

Gereç ve Yöntem: Çalışma Nisan 2016-Ekim 2020 tarihleri arasında Sivas Cumhuriyet Üniversitesi Hastanesi'nde yatarak tedavi gören hastalarda yapıldı. Bu hastaların epidemiyolojik özellikleri dosya incelemesi ile çıkarıldı ve incelendi. Bu süre içinde kesin tanı almış 486 erişkin KKKA hastası tespit edildi. Çalışma grubunu oluşturan hastaların tanıları ELISA yöntemiyle KKKA virüsü IgM antikorlarının pozitifliği ve/veya "real-time" revers transkriptaz polimeraz zincir reaksiyonu yöntemiyle RNA pozitifliğinin saptanmasıyla konulmuştur.

Bulgular: Çalışma grubunda yer alan hastaların yaş ortalaması 48,3±16,7 (yaş aralığı: 18-89) yıl olarak belirlenmiş olup %60,9'unu erkekler oluşturmuştur. Hastaların %85,5'i çiftçilik ve hayvancılık yapmaktadır. Yıllar içinde takip edilen hasta sayıları ve yaşadıkları ilçeler Tablo 1'de gösterilmiştir. KKKA tespit edilen hastaların yıllara göre ve coğrafik bölgelere göre dağılımına bakıldığında, son üç yıl içinde olgu sayılarının giderek arttığı ve hastaların özellikle daha önceki yıllarda yaygın görüldüğü Kelkit Vadisi bölgesine yakın coğrafik bölgelerden geldiği görülmektedir. Özellikle Hafik, merkez köyleri, Şarkışla, Yıldızeli, Zara gibi Kelkit Vadisi'ne komşu olan ve güneyinde yer alan bölgelerde görülen olgu artışları dikkate değerdir.

Sonuç: KKKA hastalarının sayılarının Kelkit Vadisi'ne komşu bölgelerin güneyine doğru giderek arttığı görülmektedir. Bu artış muhtemelen enfekte kene veya enfekte hayvanların Kelkit Vadisi'nin güneyine doğru yayıldığını ve ayrıca, pandemi nedeniyle bölgede yaşanan nüfus artışının da katkı sağlamış olabileceğini düşündürmektedir.

COVID-19 Pandemisinde Kırım-Kongo Kanamalı Ateşi Olgularının Sayısında Belirgin Artış: Neler Oluyor?

A Significant Increase at the Number of Crimean-Congo Haemorrhagic Fever Cases in COVID-19 Pandemic: What Is Happening?

Orçun Barkay, Umut Devrim Binay, Özlem Gül, Faruk Karakeçili

nedenler: COVID-19 salgını nedeniyle insanlar kırsal alanlara yerleşme eğilimi göstermiş olabilir. [2] *Keneye ait nedenler:* Bu yıl, kenelerle mücadelede kullanılan ilaçlama yeterli gelmemiş, kullanılan akariside karşı direnç gelişmiş olabilir. [3] *Ekolojik nedenler:* Kış, her zamankinden daha sulak geçmiş, kenelerin ideal yaşam ortamı olan orman taban örtüsü daha fazla alana yayılmış olabilir. Herbisid kullanımı, arazi yakma-sürme gibi kenelerin yaşam alanlarını tahrip eden uygulamalarda azalma olmuş olabilir. Ayrıca ekosistemde kenelerle beslenen hayvanların sayısında bir azalma olmuş olabilir. [4] *İklimsel nedenler:* Bu yıl, kenelerin normalde dış ortama çıkmadığı Şubat-Mart ayları daha ılıman geçmiş olabilir.

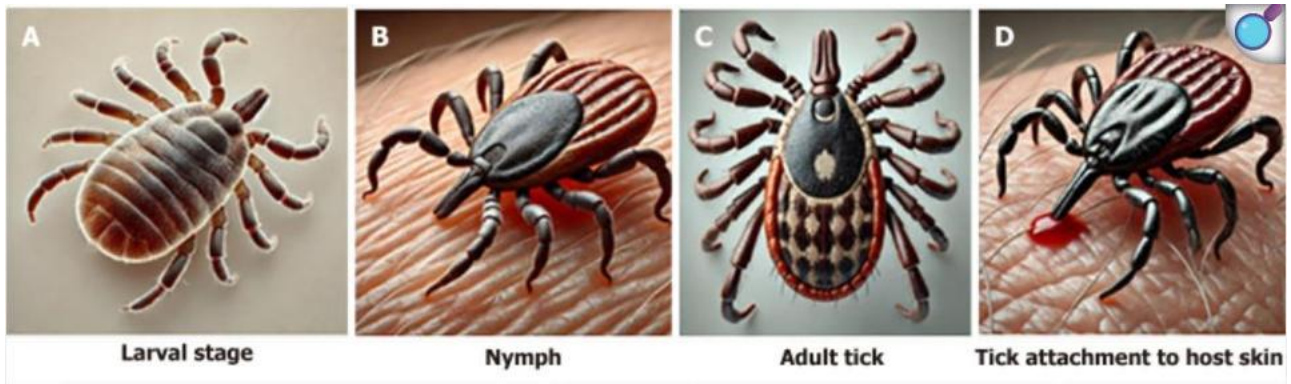
KKKA’nın bulaş yolları

Enfekte kenenin beslenmesi sırasında tükürük salgıları

Kenenin çıplak elle çıkarılması sırasında bağırsak içeriğiyle korunmasız temas

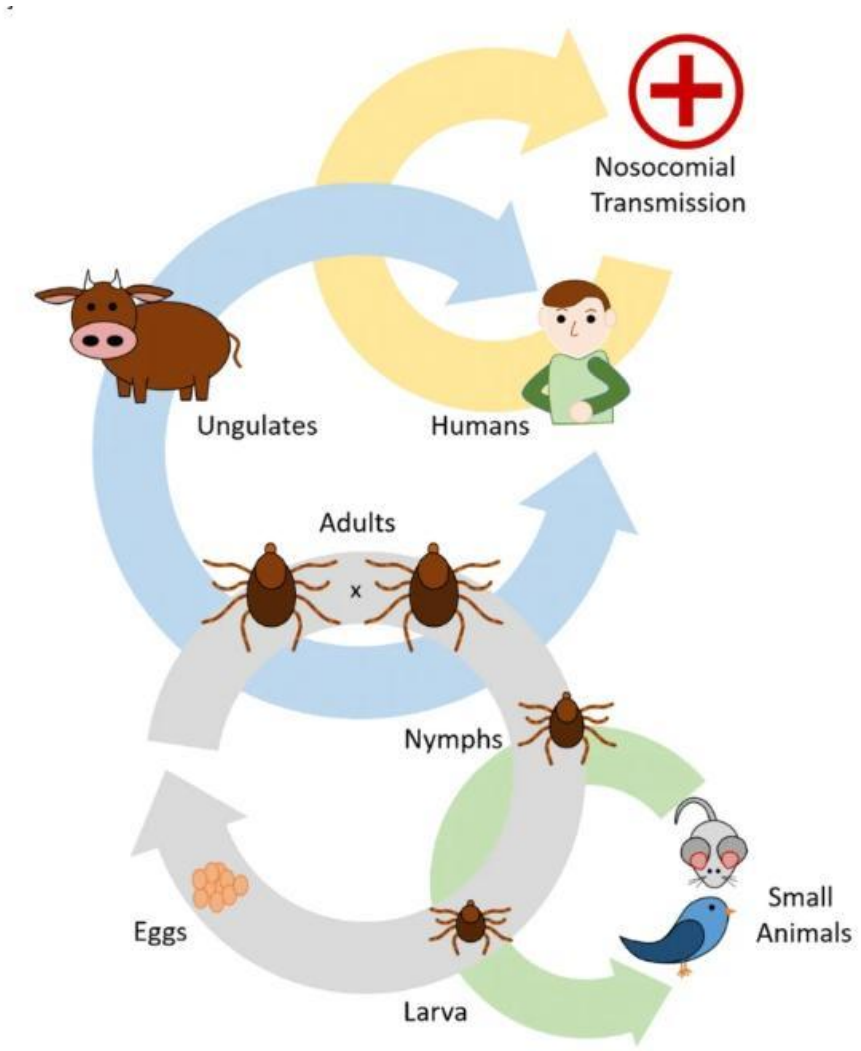
Enfekte hastanın kan ve vücut sıvılarıyla temas

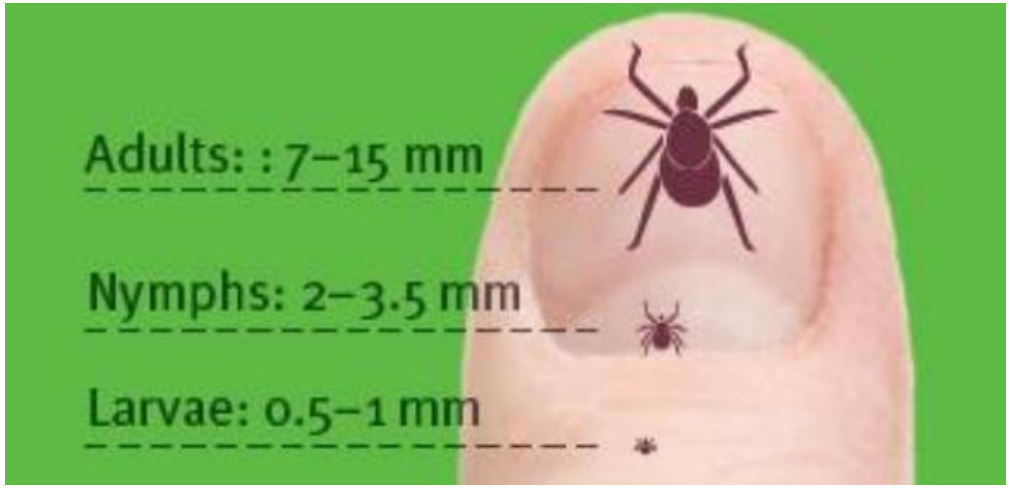
Viremik hayvanların kan, doku ve sekresyonlarıyla korunmasız temas



Türkiye Kırım Kongo Kanamalı Ateşi Vaka Yönetim Rehberi, 2025
Kazancıoğlu S et al., Mediterr J Infect Microb Antimicrob, 2017
Karanam SK et al., World J Virol, 2025

Kene, hayvan ve insan döngüsü





Kuehnert PA et al., Current Tropical Medicine Reports, 2021
WHO EPI-WIN 2025-https://cdn.who.int

Vektörler ve kene türleri

KKKAV 33 kene türünde saptanmıştır

Hyalomma scupense
Rhipicephalus rossicus
Rhipicephalus turanicus
Rhipicephalus bursa
Rhipicephalus annulatus
Dermacentor marginatus
Haemaphysalis punctata
Ixodes ricinus

Ana vektör *Hyalomma marginatum*

Tsapko NV et al., Ticks and tick-borne diseases, 2021

KKKA risk faktörleri

Hindawi
Journal of Tropical Medicine
Volume 2021, Article ID 9945089, 10 pages
https://doi.org/10.1155/2021/9945089

Hindawi

Research Article

Determination of Seroprevalence and Risk Factors of Crimean–Congo Haemorrhagic Fever (CCHF) in the Endemic Region in Turkey: A Population-Based Cross-Sectional Study

Rıza Çıtıl,[1] Mücahit Eğri,[1] Yalçın Önder,[1] Fazilet Duygu,[2] Yunus Emre Bulut,[3] Özkan Yaşayancan,[4] Nagehan Yıldız Çeltek,[5] and Şafak Şahin[6]

Objectives. Turkey is one of the countries that has the most cases of CCHF in recent years among the endemic countries. The disease also poses an important health threat with high mortality rate. The aim of the study was to determine the seroprevalence and risk factors of CCHF in adults aged ≥20 years in Tokat in the endemic region, Turkey. *Methods.* In this population-based cross-sectional study, a total of 85 Family Medicine Units (FMUs), from over 170 in Tokat, were randomly selected using 50% sampling. The sample size was determined among the subjects aged ≥20 who registered with the FMUs, due to gender, age group, and the urban/rural population size of Tokat using the stratified cluster sampling method. Subjects were invited to the FMUs. A questionnaire was performed face to face. The blood samples were taken, and anti-CCHFV IgG antibodies were measured with ELISA method. *Results.* 1272 (54.9%) out of 2319 participants were female, and the mean age was 47.3 ± 15.3. Anti-CCHFV IgG seropositivity was 5.6% ($n = 130$). Seropositivity rates in terms of adjusted odds ratios (AOR) were higher 2.53 times (95% CI: 1.57–4.08; $p = 0.001$) in males; 4.05 (95% CI: 2.14–7.65; $p < 0.001$) in age group ≥65; 0.33 (95% CI: 0.14–0.76; $p < 0.001$) in graduates of high school and above; 0.71 (95%CI: 0.33–1.52; $p < 0.001$) in ones with good income; 1.84 (95%CI: 1.18–2.86; $p < 0.001$) in farmers; 1.64 (95% CI: 1.04–2.27; $p < 0.001$) in people dealing with animal husbandry; and 1.02 (95% CI: 1.03–2.29; $p < 0.001$) in those with history of tick contact. *Conclusions.* CCHF seroprevalence is still a common public health problem in Tokat, Turkey. Male gender, advanced age group, low-educated, low-income, farmers, animal husbandry, and history of tick contact were found to be risk factors for CCHF. The importance of this kind of community-based studies to identify the seroprevalence in regional and national level increases even more.

Şüpheli, olası ve doğrulanmış olgu

Suspected Case	Probable Case	Confirmed Case
Patient with fever, myalgia, malaise, and diarrhea and History of residence in CCHF-endemic area and recent tick exposure OR residence in or travel to CCHF-endemic area	Suspected case and >1 of leukopenia thrombocytopenia, or elevated AST, ALT, or LDH	Probable case and Evidence of CCHFV in patient's bodily fluids or tissue: · Positive CCHFV IgM in serum · Positive PCR for CCHFV in blood or body fluids

Frank MG et al., Emerg Infect Dis, 2024

Tanı testi seçimi

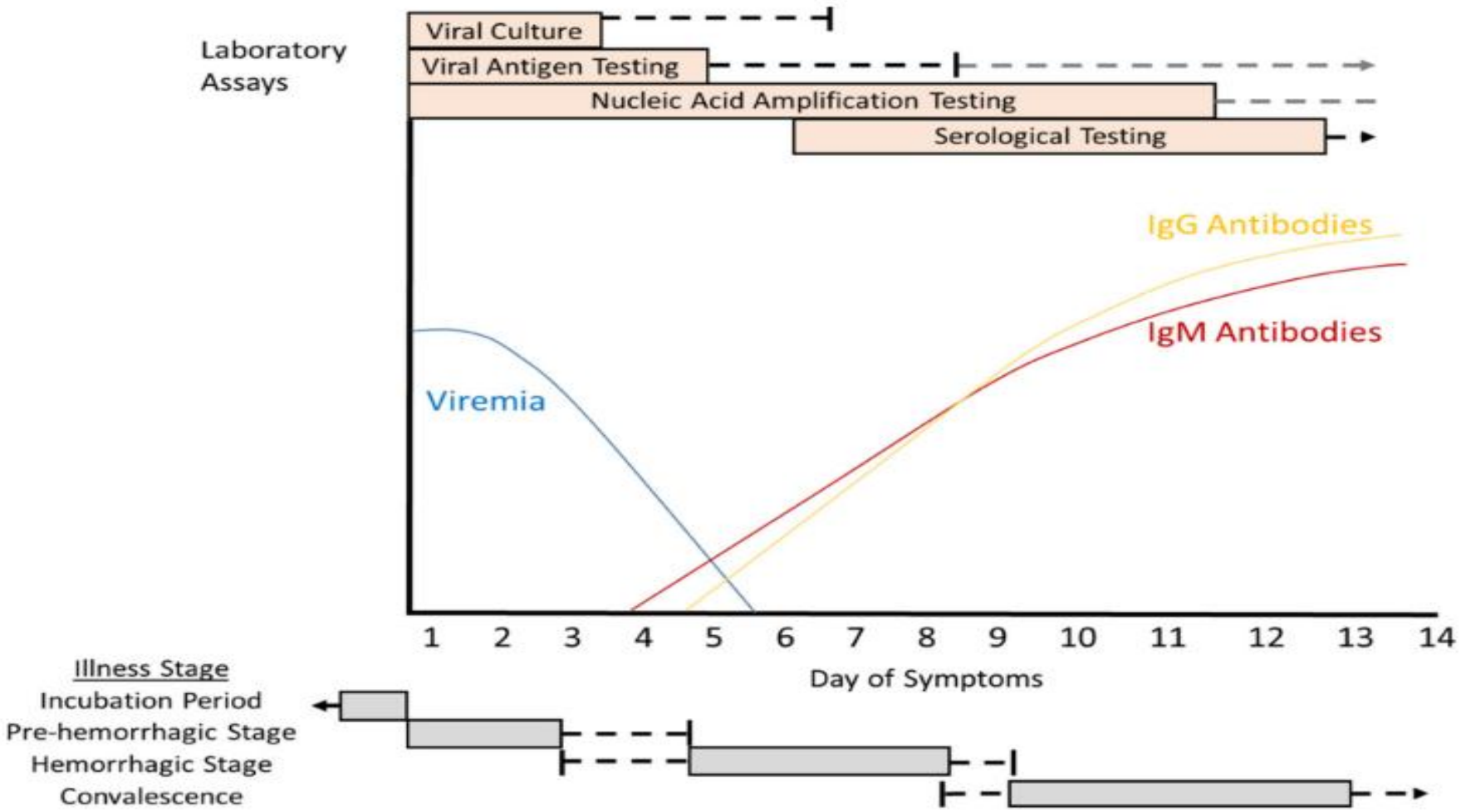
Hangi test türünün kullanılacağına karar verilirken dikkate alınması gereken faktörler

Semptom başlangıcından itibaren geçen süre

Şüpheli maruz kalma bölgesinde bulunan suşlar için testin geçerliliğidir

Raabe VN et al., J Clin Microbiol, 2020

Tanı testleri ve semptom başlangıcı



Raabe VN et al., J Clin Microbiol, 2020

Endemik bölgede ayırıcı tanı

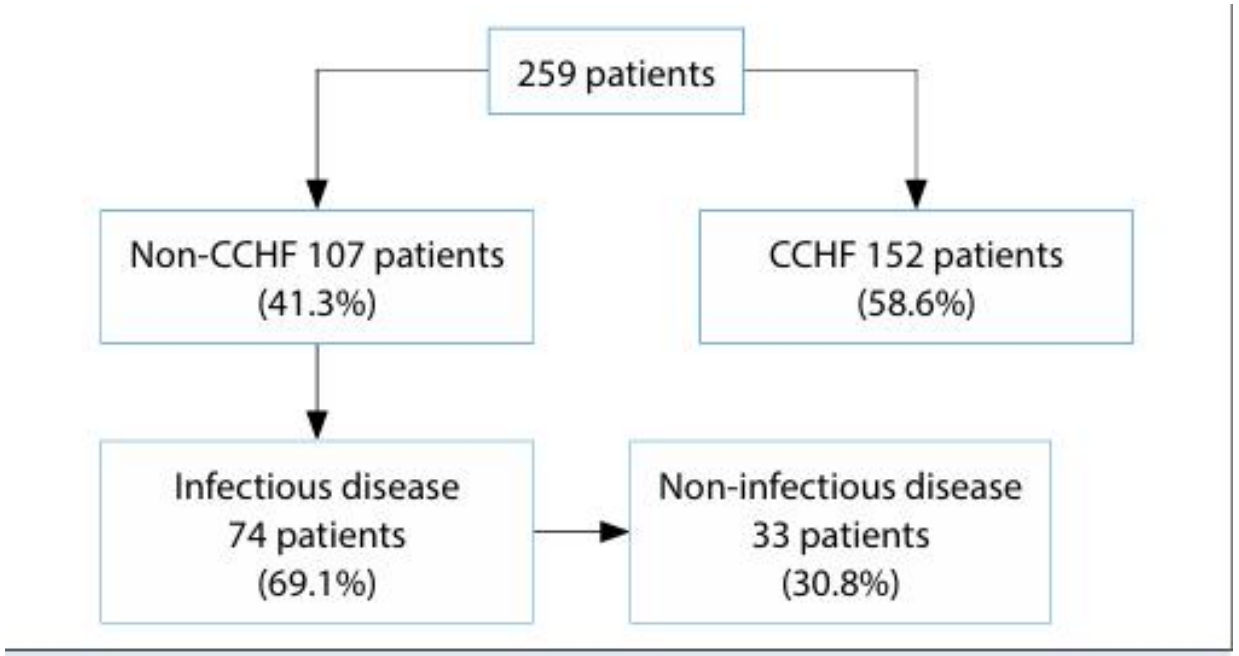
ORIGINAL ARTICLE

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Differential Diagnosis in Crimean-Congo Hemorrhagic Fever: A Comprehensive Analysis in an Endemic Region During the COVID-19 Pandemic

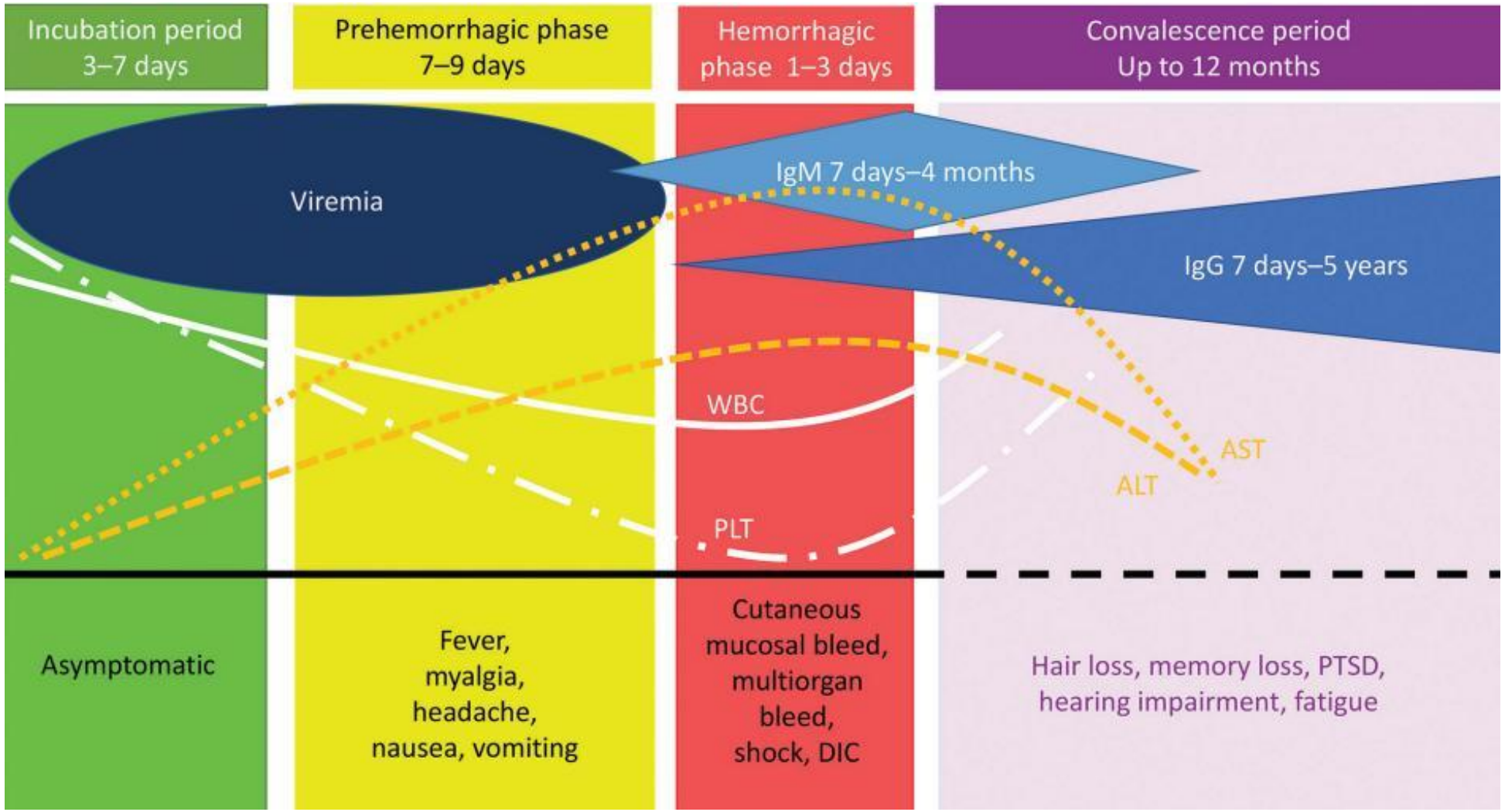
COVID-19 Pandemisi Sırasında Endemik Bir Bölgede Kırım Kongo Kanamalı Ateşinde Ayırıcı Tanı: Kapsamlı Bir Analiz

Esma Eryılmaz Eren[1], Zeynep Türe[2], Azade Kanat[1], Ayşin Kılınç Toker[1], İlhami Çelik[1]



Infectious diseases	**74 (69.1)**
COVID-19	18 (24.3)
Brucellosis	9 (12.2)
Acute gastroenteritis	13 (17.6)
Atypic pneumonia	9 (12.2)
Bacterial sepsis	12 (16.2)
Acute viral hepatitis	5 (6.8)
Malaria	3 (4.1)
Infective endocarditis	1 (1.4)
Epstein barr virus	1 (1.4)
Measles	2 (2.7)
Lyme disease	1 (1.4)
Non-infectious disease	**33 (30.9)**
Hemolytic disease	
TTP	3 (9.1)
ITP	2 (6.0)
Atypic HUS	1 (3.0)
Autoimmune disease	
RA	2 (6.1)
SLE	1 (3.0)
Vasculitis	1 (3.0)
Wilson disease	1 (3.0)
Drug related conditions	
Toxic hepatitis	11 (33.3)
Drug-related pancytopenia	3 (9.1)
Malignancies	
Lymphoma/Leukemia	3 (9.1)
Myelodysplastic syndrome	3 (9.1)
Prostate adenocarcinoma, bone marrow metastasis	2 (6.0)

KKKA'nın klinik evreleri



Klinik ve laboratuvar bulguları

North Clin Istanb 2024;11(3):177–183
doi: 10.14744/nci.2023.09815

ORIGINAL ARTICLE CLINICAL MICROBIOLOGY

Evaluation of epidemiological, clinical, laboratory and treatment characteristics of Crimen Congo hemorrhagic fever patients: Results of a 10-year analysis

Mustafa Arslan,[1] Senol Comoglu[2]

RESULTS: The mean age (±standard deviation) of 88 cases was 48±18 years, and 53 (60.2%) were male. Of the patients, 68 (77.3%) were engaged in farming and animal husbandry, and 79 (89.7%) lived in villages and hamlets. Tasova district had the highest frequency of cases, with 29 (32.9%) patients. June was the most common month for the disease, with 31 (35.2%) cases. The most common symptom on admission was fatigue, with a rate of 93%. Other symptoms included myalgia and arthralgia (83.2%), fever (65%), headache (64.4%), nausea-vomiting (43.5%), conjunctival hyperemia (35.2%), and diarrhea (21.7%). In clinical follow-up, bleeding was missed in 15 (17.04%) patients. On admission to the hospital, there were elevated levels of thrombocytopenia (92%), leukopenia (84.1%), aspartate aminotransferase and alanine aminotransferase (86.3%), creatinine phosphokinase (71.6%), and lactate dehydrogenase (76.1%). None of the patients were given ribavirin treatment. Our mortality rate was 3.40% with three patients.

ORIGINAL ARTICLE

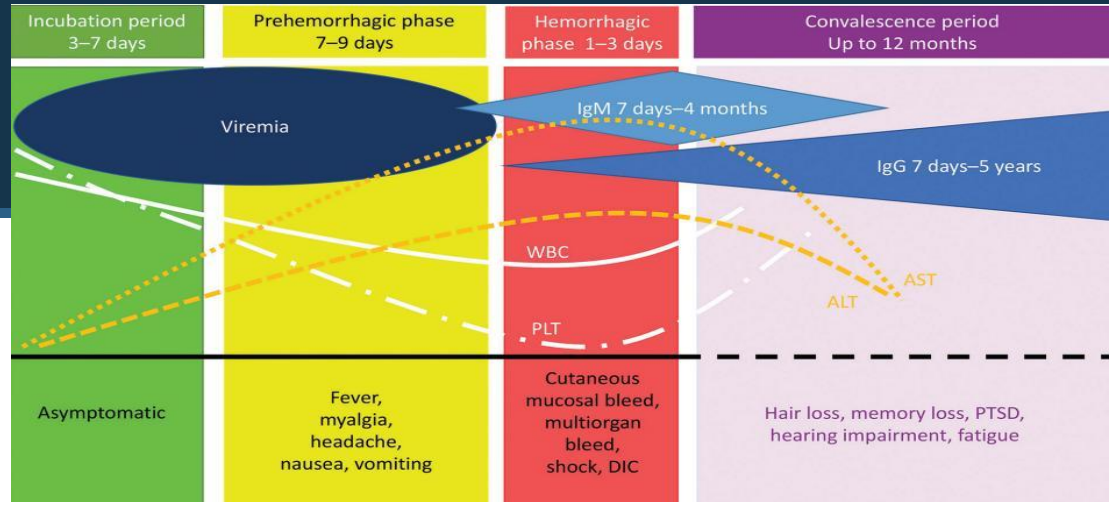
The prognostic role of the new entity butterfly-like facial rash and cutaneous findings in patients with crimean congo haemorrhagic fever

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Results A new entity that is first reported in this study as a butterfly-like facial rash was recognized in 76 patients (42.9%). It was not correlated with mortality but could coexist with other dermatological signs of CCHF. The major outcome was the increased mortality rate with other cutaneous findings (especially ecchymosis, purpura and petechia) ($P < 0.01$). While 12 deceased individuals had one or more skin findings, only one patient died without any cutaneous manifestations. Mortality rate was higher in patients with purpura than the patients with pethesia. The statistically significant correlation was observed between cutaneous manifestations and elevation of aspartate aminotransferase (AST) levels ($P = 0.009$). Platelet levels were lower in patients with cutaneous involvement ($P < 0.01$). No statistically significant relationship was found between cutaneous findings and alanine aminotransferase (ALT), white blood cell (WBC), Haemoglobin (Hb), creatinine kinase (CK) and lactate dehydrogenase (LDH) levels.

Dönemlere göre klinik bulgular



Değişkenler	Dönem 1	Dönem 2	Dönem 3	Dönem 4	P*	P¹	P²	P³	P⁴
	n (%)	n (%)	n (%)	n (%)					
Ateş	0 (0)	0 (0)	0 (0)	0 (0)	NA	NA	NA	NA	NA
Halsizlik/ Yorgunluk	40 (49.4)	29 (35.8)	15 (18.5)	9 (11.1)	**<0,001**	**<0.001**	**<0.001**	**<0.001**	**0.002**
Kusma/Bulantı	2 (2.5)	0 (0)	0 (0)	0 (0)	0.159	0.325	NA	NA	NA
İshal	1 (1.2)	0 (0)	0 (0)	0 (0)	0.320	0.143	NA	NA	NA
Kas-Eklem Ağrısı	29 (35.8)	14 (17.3)	7 (8.6)	1 (1.2)	**<0,001**	**<0.001**	**<0.001**	**<0.001**	**0.003**
Iştahsızlık	34 (42)	19 (23.5)	11 (13.6)	9 (11.1)	**<0,001**	**<0.001**	**<0.001**	**<0.001**	**0.002**
Kilo Kaybı	14 (17.3)	4 (4,9)	1 (1.2)	0 (0)	**<0,001**	**<0.001**	**<0.001**	0.396	0.143
Baş Ağrısı	19 (23.5)	3 (3.7)	0 (0)	0 (0)	**<0,001**	**0.001**	0.191	NA	NA
Kanama	0 (0)	0 (0)	0 (0)	0 (0)	NA	NA	NA	NA	NA
Çarpıntı	3 (3.7)	0 (0)	0 (0)	0 (0)	0.083	0.963	NA	NA	NA
Unutkanlık	4 (4.9)	0 (0)	0 (0)	0 (0)	0.075	**0.003**	NA	NA	NA
Sinirlilik	11 (13,6)	2 (2.5)	0 (0)	0 (0)	**<0.001**	**0.002**	**0.037**	NA	NA
Ağız K./TAT B	7 (8.6)	1 (1.2)	0 (0)	0 (0)	**0.007**	0.834	0.146	NA	NA
Uykusuzluk	31 (38.3)	14 (17.3)	7 (8.6)	3 (3.7)	**<0.001**	**<0.001**	**<0.001**	**0.002**	0.191
İşitme Kaybı	0 (0)	0 (0)	0 (0)	0 (0)	NA	NA	NA	NA	NA
Nefes Darlığı	2 (2.5)	0 (0)	0 (0)	0 (0)	0.320	NA	NA	NA	NA
Görmede Azalma	0 (0)	0 (0)	0 (0)	0 (0)	NA	NA	NA	NA	NA
Tinnitus	0 (0)	0 (0)	0 (0)	0 (0)	NA	NA	NA	NA	NA
Saç Dökülmesi	8 (9.9)	7 (8.6)	4 (4.9)	4 (4.9)	0.097	**<0.001**	**0.001**	**0.003**	0.059
Uyuşma	2 (2.5)	0 (0)	0 (0)	0 (0)	0.159	0.583	NA	NA	NA
Terleme	8 (9.9)	2 (2.5)	1 (1.2)	1 (1.2)	0.162	**<0.001**	**0.037**	0.093	0.085

İmmün ve metabolik yanıt

PNAS RESEARCH ARTICLE | SYSTEMS BIOLOGY OPEN ACCESS

Systems-level temporal immune-metabolic profile in Crimean-Congo hemorrhagic fever virus infection

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Edited by Gustavo Palacios, Icahn School of Medicine at Mount Sinai, New York City, NY; received March 22, 2023; accepted July 21, 2023 by Editorial Board Member Adolfo Garcia-Sastre

Crimean-Congo hemorrhagic fever (CCHF) caused by CCHF virus (CCHFV) is one of the epidemic-prone diseases prioritized by the World Health Organisation as public health emergency with an urgent need for accelerated research. The trajectory of host response against CCHFV is multifarious and remains unknown. Here, we reported the temporal spectrum of pathogenesis following the CCHFV infection using genome-wide blood transcriptomics analysis followed by advanced systems biology analysis, temporal immune-pathogenic alterations, and context-specific progressive and postinfection genome-scale metabolic models (GSMM) on samples collected during the acute (T0), early convalescent (T1), and convalescent-phase (T2). The interplay between the retinoic acid-inducible gene-I-like/nucleotide-binding oligomerization domain-like receptor and tumor necrosis factor signaling governed the trajectory of antiviral immune responses. The rearrangement of intracellular metabolic fluxes toward the amino acid metabolism and metabolic shift toward oxidative phosphorylation and fatty acid oxidation during acute CCHFV infection determine the pathogenicity. The upregulation of the tricarboxylic acid cycle during CCHFV infection, compared to the noninfected healthy control and between the severity groups, indicated an increased energy demand and cellular stress. The upregulation of glycolysis and pyruvate metabolism potentiated energy generation through alternative pathways associated with the severity of the infection. The downregulation of metabolic processes at the convalescent phase identified by blood cell transcriptomics and single-cell type proteomics of five immune cells ($CD4^+$ and $CD8^+$ T cells, $CD14^+$ monocytes, B cells, and NK cells) potentially leads to metabolic rewiring through the recovery due to hyperactivity during the acute phase leading to post-viral fatigue syndrome.

Significance

Our study identified a dysregulation and hyperactivity of the critical metabolic process of the central carbon and energy metabolism, and metabolic flux related to the amino acid metabolism during the acute progressive phases of infection can promote the exhausted phenotype upon recovery leading to postviral fatigue syndrome in CCHFV (Crimean-Congo hemorrhagic fever virus) infection.

KKKA reenfeksiyonu: 11 yıl sonra

Contents lists available at ScienceDirect

Diagnostic Microbiology & Infectious Disease

journal homepage: www.elsevier.com/locate/diagmicrobio



Case Report

The first reported Crimean–Congo hemorrhagic fever reinfection in the literature: 11 years apart

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KKKA’da destek tedavisi



KKKA hastalarının tedavisi için yeteri kadar etkili, teyit edilmiş spesifik bir tedavi yoktur. Bu nedenle, KKKA hastaları yakından takip edilmeli ve etkili destek tedavisi uygulanmalıdır. Tedavide sonraki adım hastanın klinik durumu ve trombosit, PT, aPTT, INR gibi laboratuvar parametreleri takip edilerek destek tedavisini sürdürmek şeklindedir.

Destek tedavisi

Treatment	Indication	Dose
Fluid replacement (crystalloid or synthetic colloid)	Fluid deficiency, restricted oral intake	
Platelet suspension	Hemorrhage and thrombocytopenia	
	Presence of clinically- significant bleeding (e.g., hematemesis, melena, or epistaxis) and platelet count <50,000/mm^3	1 U platelets by apheresis or 1 U random platelets/15 kg
	Platelet count <10.000/mm^3 in patients with no fever or abnormalities in coagulation parameters	
	Platelet count <20,000/mm^3 with fever or systemic hemostatic defect	
	Platelet count <50,000/mm^3 in patients who are to undergo an invasive intervention	
Fresh frozen plasma	Synthesis defect	
	PT/INR 1.5 times the upper limit of normal or aPTT upper limit of normal	10–15 mL/kg/day, divided into two doses
Fluid replacement and erythrocyte suspension	Hemorrhage	
Rapid fluid replacement (crystalloid or synthetic colloid) and erythrocyte suspension	Grade 4 Blood loss >40% (>2000 mL)	
Rapid fluid replacement (crystalloid or synthetic colloid) and erythrocyte suspension	Grade 3 Blood loss 30–40% (1500–2000 mL)	
Fluid replacement (crystalloid or synthetic colloid), erythrocyte suspension (in anemia, continuing blood loss or in cardiac reserve deficiency)	Grade 2 Blood loss 15–30% (750–1500 mL)	
Erythrocyte suspension administration is not needed (excluding anemia and secondary fluid loss, cardiac and respiratory complications)	Grade 1 Blood loss <15% (<750 mL)	
Paracetamol	Fever, pain	10 mg/kg, in 4- to 6-h intervals
Antibiotics (of corresponding spectrum)	Secondary infection (e.g., sepsis or pneumonia)	
Hemodialysis	Renal insufficiency Hyperpotassemia Severe metabolic acidosis Uremic pericarditis Fluid load	
Mechanical ventilation	Respiratory failure P_{AO_2} <55 mm Hg (F_{IO_2} ≥60% O_2) P_{ACO_2} >45 mm Hg pH <7.3	

Leblebicioğlu H et al., Vector-Borne and Zoonotic Diseases, 2012

Ribavirin: WHO 2016

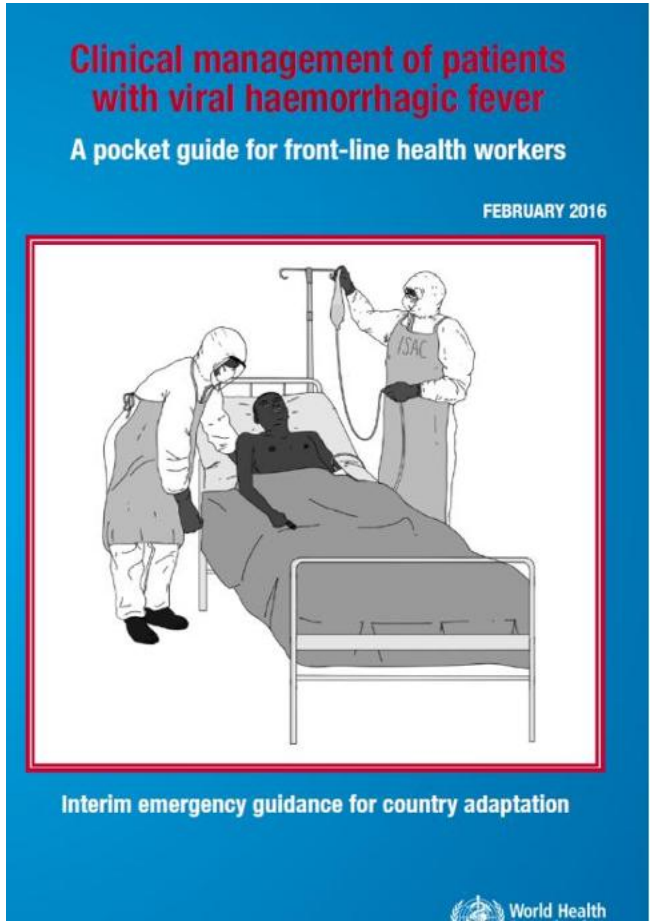


Table 9. Ribavirin dose for treatment of Lassa fever and CCHF *(34)*

Route	Dose	Interval
IV*	30 mg/kg (maximum 2 grams)**	Loading dose followed by:
IV*	15 mg/kg (maximum 1 gram)**	Every 6 hours for 4 days, followed by:
IV*	7.5 mg/kg (maximum 500 mg)**	Every 8 hours for 6 days.

* Dilute ribavirin in 150 ml of 0.9% saline and infuse slowly.

** Reduce the dose in persons known to have renal insufficiency (creatinine clearance <50 ml/minute).

Ribavirin: WHO temel ilaç listesi kararı



Committee recommendations

The Expert Committee noted that the justification to use ribavirin for viral haemorrhagic fevers is based on one biased quasi-experimental study from the 1980s. However, the efficacy and safety of ribavirin have not been verified in appropriate follow-up randomized trials. Recent systematic reviews concluded that the available evidence was insufficient to recommend the routine use of ribavirin in Crimean–Congo haemorrhagic fever or Lassa fever given the high risk of bias in the included studies.

Additional concerns over the lack of effect of ribavirin for viral haemorrhagic fever emerged. A biological rationale is lacking to support the use of ribavirin in this infection given that its mechanism of action is unknown. Further, evidence points to a potentially harmful effect in patients with mild disease.

Based on these considerations, and until the efficacy and safety of ribavirin is verified in further research, the Expert Committee recommended the deletion of ribavirin for the treatment of viral haemorrhagic fevers from the EML and EMLc.

Rutin kullanım için kanıtlar yetersiz
Etkinlik ve güvenlik doğrulanıncaya kadar EML ve EMLc'den çıkarılmıştır

İntravenöz ribavirin: çalışma sonuçları

Journal of Infection (2008) 57, 350–359

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LETTERS TO THE EDITOR

A preliminary study to evaluate the effect of intravenous ribavirin treatment on survival rates in Crimean–Congo hemorrhagic fever

Totally 25 confirmed CCHF cases with severe disease were included in the study. Nine patients receiving i.v. ribavirin in addition to supportive treatment were included

Table 1 Efficacy of i.v. ribavirin therapy

Characteristics	I.V. ribavirin group, $N = 9$	Control group, $n = 16$	P value
Duration of hospitalization (days)	8.3 ± 1.9	6.4 ± 0.7	0.266
Mean thrombocyte suspension transfused (units)	10.75 ± 13.1	7.19 ± 13	0.536
Mean fresh frozen plasma transfused (units)	11.33 ± 12.1	7.88 ± 14.4	0.549
Mean erythrocyte suspension transfused (units)	0.5 ± 1.1	1.13 ± 2.4	0.487
Patients who died (n)	5 (55.5%)	7 (43.7%)	0.571

Favipiravir: fare modeli

Favipiravir (T-705) but not ribavirin is effective against two distinct strains of Crimean-Congo hemorrhagic fever virus in mice

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ARTICLE INFO

Keywords:
Crimean-Congo hemorrhagic fever virus
CCHFV
Mouse model
Ribavirin
Favipiravir
T-705

ABSTRACT

Crimean-Congo hemorrhagic fever virus (CCHFV) is a cause of serious hemorrhagic disease in humans. Humans infected with CCHFV develop a non-specific febrile illness and then progress to the hemorrhagic phase where case fatality rates can be as high as 30%. Currently there is lack of vaccines and the recommended antiviral treatment, ribavirin, has inconsistent efficacy in both human and animal studies. In this study we developed a model of CCHFV infection in type I interferon deficient mice using the clinical CCHFV isolate strain Hoti. Mice infected with strain Hoti develop a progressively worsening and ultimately fatal disease. We utilized this model along with our established model using the prototypical CCHFV strain 10200 to evaluate treatment with ribavirin or the antiviral favipiravir. While ribavirin treatment was able to suppress viral loads at early time points it was ultimately unable to prevent development of terminal disease in mice infected with either strain of CCHFV. In contrast, favipiravir showed clinical benefit even when administered late in the clinical progression of CCHF. Interestingly, in a small subset of mice, late-onset of CCHF was observed after favipiravir treatment was stopped and persistence of viral RNA in favipiravir treated survivors was also seen. Nevertheless, favipiravir showed significant clinical benefit against two distinct strains of CCHFV suggesting it may be a potent antiviral for treatment of human CCHFV infections.

Favipiravir, iki farklı CCHFV suşuyla oluşturulan fare modelinde ribavirinden daha güçlü bir antiviral aday olarak öne çıkmıştır

Favipiravir: makak modeli

Contents lists available at ScienceDirect

Antiviral Research

journal homepage: www.elsevier.com/locate/antiviral



Research paper

Efficacy of favipiravir (T-705) against Crimean-Congo hemorrhagic fever virus infection in cynomolgus macaques

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ARTICLE INFO

Keywords:
Crimean-Congo hemorrhagic Fever
Favipiravir
Antiviral
Macaques

ABSTRACT

Crimean-Congo hemorrhagic fever virus (CCHFV) is a widely distributed hemorrhagic fever virus found throughout Eastern Europe, Africa, the Middle East and Asia. It is spread through bites from infected ticks, animal husbandry and can also be acquired in the healthcare setting during care of infected patients. In humans, CCHFV can cause a sudden onset of a non-specific febrile illness that can rapidly progress to severe hemorrhagic manifestations. Currently, there is no widely available vaccine and although ribavirin has been suggested for the treatment of CCHFV, clinical efficacy in both animal models and humans is inconsistent suggesting more potent antivirals are needed for CCHFV. Favipiravir is approved in Japan for the treatment of influenza virus infections and has shown promise against other highly pathogenic RNA viruses including CCHFV with demonstrated efficacy in the type I interferon deficient mouse model. In this report we utilized the cynomolgus macaque model to evaluate the efficacy of once- and twice-daily favipiravir treatment against CCHFV infection. We found that favipiravir treatment suppressed viremia and viral shedding when treatment was initiated 24 h post-infection and viral burdens in key tissues trended lower in favipiravir-treated animals. Our data indicate that favipiravir has efficacy against CCHFV *in vivo* in a non-human primate model of infection.

Enfeksiyondan 24 saat sonra başlanan favipiravir, makaklarda viremi ve viral yayılımı belirgin biçimde azaltmıştır

UMIT-1: Faz 1B çalışması

L0018

UMIT-1, Phase IB Trial: IV favipiravir and ribavirin for the treatment of CCHF

Late Breakers

22. Clinical trials

I. Bozkurt[1, 2], H. Bodur[3], M. Ertek[4], F. Altuntaş[5], N. Elaldi[6], G. İskender[4], D. Mert[4], Y. Cosgun[7], E. Beren Tanik[7], E. Challenger[8], C.R. Thompson[2], L. Read[2], L. Else[2], L. Marsh[2], S.A. Büyüktuna[9], H. Can Bilek[10], H. Karadeniz[11], H. Oksuzoglu[11], A. Haykır Solay[12], E. Türkoğlu[13], M. Arslan[14], A. Torun[15], S. Kulari[16], J. Read[2], C. Rawcliffe[2], M. Yıldız[16], S. Khoo[8], T. Fletcher[2].

Results

Twenty-four patients were enrolled (16 investigational, 8 SoC). The median age was 57 years (range 22–70), and 33.3% were female. No deaths occurred. All participants experienced at least one adverse event (AE); grade ≥3 AEs occurred in 83.3% of participants, none attributed to favipiravir.

In the absence of ribavirin, high-dose favipiravir plasma exposures increased 3.75-fold (p=0.03) versus low-dose. Day 3 pre-dose levels exceeded the in vitro CCHF IC90 (1.6 µg/mL) in all participants. Bayesian modelling demonstrated high dose favipiravir monotherapy as the regimen with the highest probability of lying within the target therapeutic interval (43.9%) and a low probability of excessive toxicity (11.2%). Viral load decline was significantly greater in favipiravir-treated groups compared with SoC on day 3 (−0.48 $\log_{10}$; p=0.023).

Deksametazon: retrospektif çalışma

J Vector Borne Dis 62, June 2025, pp. 181–186

Effect of dexamethasone therapy in Crimean-Congo hemorrhagic fever in Giresun: An analytical study

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ABSTRACT

Background & objectives: Crimean-Congo hemorrhagic fever (CCHF) is a zoonotic disease and significant health concern particularly in endemic regions. We aimed to evaluate the efficacy in dexamethasone treatment on clinical outcomes in CCHF patients.

Methods: We included adult patients diagnosed with CCHF and those whose platelet count dropped to 70,000/mm^3 or lower. The efficacy of dexamethasone on clinical outcomes was evaluated. It was a retrospective analytical study.

Results: All 55 patients received standard supportive treatment, and none of them received ribavirin therapy. It was observed that 23 (41.8%) patients were treated with dexamethasone. No significant differences were observed between patients treated with dexamethasone and without, regarding factors such as bleeding incidents during hospitalization, the need for blood product transfusions, thrombocyte recovery status, intensive care unit admission, and in-hospital mortality. In-hospital mortality was observed in two patients (3.6%).

Interpretation & conclusion: Our study found that dexamethasone treatment did not lead to a significant improvement in the clinical outcomes for CCHF patients.

Deksametazon tedavisi, KKKA hastalarında kanama, transfüzyon gereksinimi, trombosit iyileşmesi, yoğun bakım yatışı veya mortalite açısından klinik yarar sağlamamıştır

Yüksek doz metilprednizolon

Efficacy of high-dose methylprednisolone in patients with Crimean-Congo haemorrhagic fever and severe thrombocytopenia

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sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/0049475513486642
tdo.sagepub.com
SAGE

Batool Sharifi-Mood[1], Roya Alavi-Naini[1], Maliheh Metanat[2], Mehdi Mohammadi[3], Asad Shakeri[4] and Ali Amjadi[5]

Abstract

Crimean-Congo haemorrhagic fever (CCHF) is an acute viral haemorrhagic disease that is now endemic in south eastern Iran. The most important factor associated with mortality is a platelet count of less than 50,000/mL. The purpose of this study is to compare treated cases with severe thrombocytopenia using ribavirin with high-dose methylprednisolone (HDMP) with patients receiving ribavirin without HDMP. A clinical trial was conducted for confirmed patients with CCHF and severe thrombocytopenia (platelet count less than 50,000/mL) admitted to Boo-Ali Hospital in Zahedan between January 2010 and October 2011. The intervention group was given oral ribavirin, supportive managements and HDMP and the controls were treated with ribavirin and supportive management. Following HDMP therapy in hospitalized patients with severe thrombocytopenia, the platelet count increased within 36 h and the leukocyte count within 48 h of the beginning of treatment. Fewer in the intervention group required a transfusion of blood products than in the controls ($P < 0.001$). No one in the intervention group died. It seems that high-dose methylprednisolone is effective in the treatment of patients with CCHF. The increased platelet count and reduction of blood product requirement for severe CCHF patients after receiving HDMP are promising results. Further investigation is necessary in order to determine the efficacy of corticosteroid and its effect on outcome.

Yüksek doz metilprednizolon, bu küçük çalışma grubunda hematolojik iyileşme ve daha düşük transfüzyon gereksinimiyle ilişkili bulunmuştur

Ağır KKKA'da IVIG



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Original Article

Asian Pacific Journal of Tropical Medicine

doi: 10.4103/apjtm.apjtm_449_25

Intravenous immunoglobulin in severe Crimean–Congo hemorrhagic fever: A retrospective study

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Results: 72 patients were included in the analysis, with IVIg administered to 42 cases (58.3%) and not given to 30 cases (41.7%). Among the patients, 37 (51.4%) were female. Fever (65.3%) was the most common clinical presentation. The overall mortality rate was 19.4%, and IVIg administration did not significantly impact overall survival outcomes (P=0.48). On Day 3 following IVIg administration or indication, the platelet count was higher in the IVIg-treated group compared to the non-treated group (P=0.02). Furthermore, during follow-up beyond 24 hours after IVIg administration, bleeding was observed in 19.0% of the IVIg-treated group, compared to 46.6% in the non-treated group (P=0.01).

Ağır KKKA hastalarında IVIG kullanımı daha erken trombosit iyileşmesi ve daha az kanamayla ilişkili bulunmuş; ancak mortaliteyi azaltmamıştır

Ribavirin ve standart IVIG

ORIGINAL ARTICLE

Comparative study between Ribavirin and Ribavirin plus Intravenous Immunoglobulin against Crimean Congo hemorrhagic fever

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Background: Crimean Congo hemorrhagic fever (CCHF) has high morbidity and mortality. Therefore the treatment effect of Ribavirin with and without intravenous Immunoglobulin (IVIG) in viral Crimean Congo hemorrhagic fever was evaluated. **Materials and Methods:** In a clinical trial study, 40 patients with confirmatory positive serology test, 12 (30%) received Ribavirin and IVIG (case group) and 28 (70%) received only ribavirin as standards therapy (control group). The patients were followed and compared by defervescence and other clinical symptoms, and laboratory results such as white blood cell count (WBC), platelets; liver function test (LFT) and duration of hospitalization and mortality rate after eight weeks. **Results:** The mean (SD) period for defervescence and stopping bleedings was five (0.6) days in case group and five (0.5) days in control group with no significant differences ($P = 0.27$). The mean period for return of WBC to normal was three (0.6) days in case group and five (0.8) days in control group ($P = 0.002$). The mean period for return of LFT to normal was three (0.9) days in case group and seven (0.5) days in control group which showed a meaningful difference ($P = 0.001$) Normalization of platelets was returned within four (0.8) days in case group compared to 6 (0.6) days in control group. Mortality was observed in three cases of each group. **Conclusion:** Considering our results, using IVIG in viral hemorrhagic fever (VHF) may need further evaluations.

Key words: Congo fever, hemorrhagic, intravenous Immunoglobulin, Ribavirin, viral

Ribavirine standart IVIG eklenmesi lökosit, trombosit ve karaciğer enzimlerinin normalleşmesini hızlandırmış görünmekle birlikte klinik iyileşme veya mortalite açısından anlamlı yarar göstermemiştir

Terapötik plazma değişimi

Efficacy of therapeutic plasma exchange in patients with Crimean-Congo hemorrhagic fever

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Abstract

Objective: To examine the efficacy of therapeutic plasma exchange (TPE) in patients critically ill with Crimean-Congo hemorrhagic fever (CCHF).

Methods: Patients with CCHF received supportive treatment (ST) or TPE. After laboratory and clinical evaluations, the patients were divided into mild, moderate, and severe CCHF groups according to the severity score index (SSI). To assess the efficacy of TPE, the incubation period, time of admission to hospital, hospitalization duration, mortality rate and times to recovery of the platelet count and aspartate aminotransferase (AST) and alanine aminotransferase (ALT) levels were compared between patients receiving ST and TPE.

Result: A total of 119 confirmed CCHF cases was analyzed. The median SSIs were 7 in the TPE group and 5 in the ST group. The SSI stages, median incubation times and admission times were similar in the two groups. However, the duration of hospitalization was longer in the TPE group. The overall mortality rates were 9% (3 of 33 patients) in the TPE group and 16% (5 of 31 patients) in the ST group; the difference was significant. The platelet count recovered after a median of 6 (4-7) days in the ST group.

Conclusion: The mortality rate was lower in the TPE group than in the ST group, but the duration of hospitalization and the time to platelet recovery were longer in the TPE group than in the ST group. TPE did not contribute significantly to the prognosis of patients with intermediate-severity CCHF. However, TPE might be efficacious in patients with severe CCHF.

TABLE 5 Mortality rates

	TPE group (n = 33)		ST group (n = 31)		
Severity	Survival	Death	Survival	Death	*P*
Moderate	25	1	25	2	.5
Severe	5	2	1	3	.1
Total	30	3	26	5	.3

Abbreviations: ST, supportive treatment; TPE, therapeutic plasma exchange.

Hiperimmünglobülin

Prompt Administration of Crimean-Congo Hemorrhagic Fever (CCHF) Virus Hyperimmunoglobulin in Patients Diagnosed with CCHF and Viral Load Monitorization by Reverse Transcriptase-PCR

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(Received May 10, 2011. Accepted August 9, 2011)

SUMMARY: Crimean-Congo hemorrhagic fever virus (CCHFV), a member of the genus *Nairovirus* of the family *Bunyaviridae*, causes a severe disease in humans with high mortality rates. In Turkey, the number of patients with CCHF has increased since 2002. Here, we aimed to treat CCHF patients with CCHFV hyperimmunoglobulin. We prepared a CCHFV hyperimmunoglobulin product from 22 individuals who survived CCHF infection. A total of 26 CCHF patients were enrolled into this study. For CCHFV hyperimmunoglobulin administration, a Kubar Unit (KU) was defined. As a standard therapeutic approach, 400 KU of hyperimmunoglobulin were given to each patient as a single dose before viral load was detected. We used one-step real-time reverse transcriptase-PCR to monitor the viral load of CCHF patients. According to the one-step real-time PCR results, 15 patients with a viral load of 10^8 copies/mL or more were defined as high risk. In this high-risk group, the survival rate was found to be 86.6% (13/15) and 2 patients died despite CCHFV hyperimmunoglobulin administration. CCHF is a very serious and highly fatal infection, particularly for patients in the defined high-risk group. Prompt administration of CCHFV hyperimmunoglobulin might be a very promising new treatment approach, especially for high-risk individuals.

KKKA hiperimmünglobülinin erken uygulanmasının, özellikle yüksek riskli hastalarda ümit verici olabileceği ifade edilmiştir

KKKA aşılarının gelişim durumu

KKKA için uluslararası düzeyde ruhsatlandırılmış ve yaygın kullanıma sunulmuş bir insan aşısı henüz yoktur

Alan artık yalnızca hayvan deneylerinden ibaret değildir

Birkaç aday Faz I'e ulaşmıştır

Henüz Faz II/III etkinlik verisi veya gerçek yaşam koruyuculuk sonucu bulunmamaktadır

Faz 1 aşamasındaki aşı adayları



Research and product development for Crimean–Congo haemorrhagic fever: priorities for 2024–30

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Dört aşı faz 1 insan çalışmalarında ilerlemektedir

Hücre kültüründen elde edilmiş inaktive bir aşı (KIRIM-KONGO-VAX; NCT03020771)

Modifiye vaccinia virus Ankara (MVA) vektörlü bir aşı (MVA-CCHF; ISRCTN14935155)

Şempanze adenovirüs vektörlü bir aşı (ChAdOx2 CCHF; ISRCTN12351734)

DNA aşısı (N-pVAX1; EUCT 2023-508556-18-00)

Teşekkür ederim