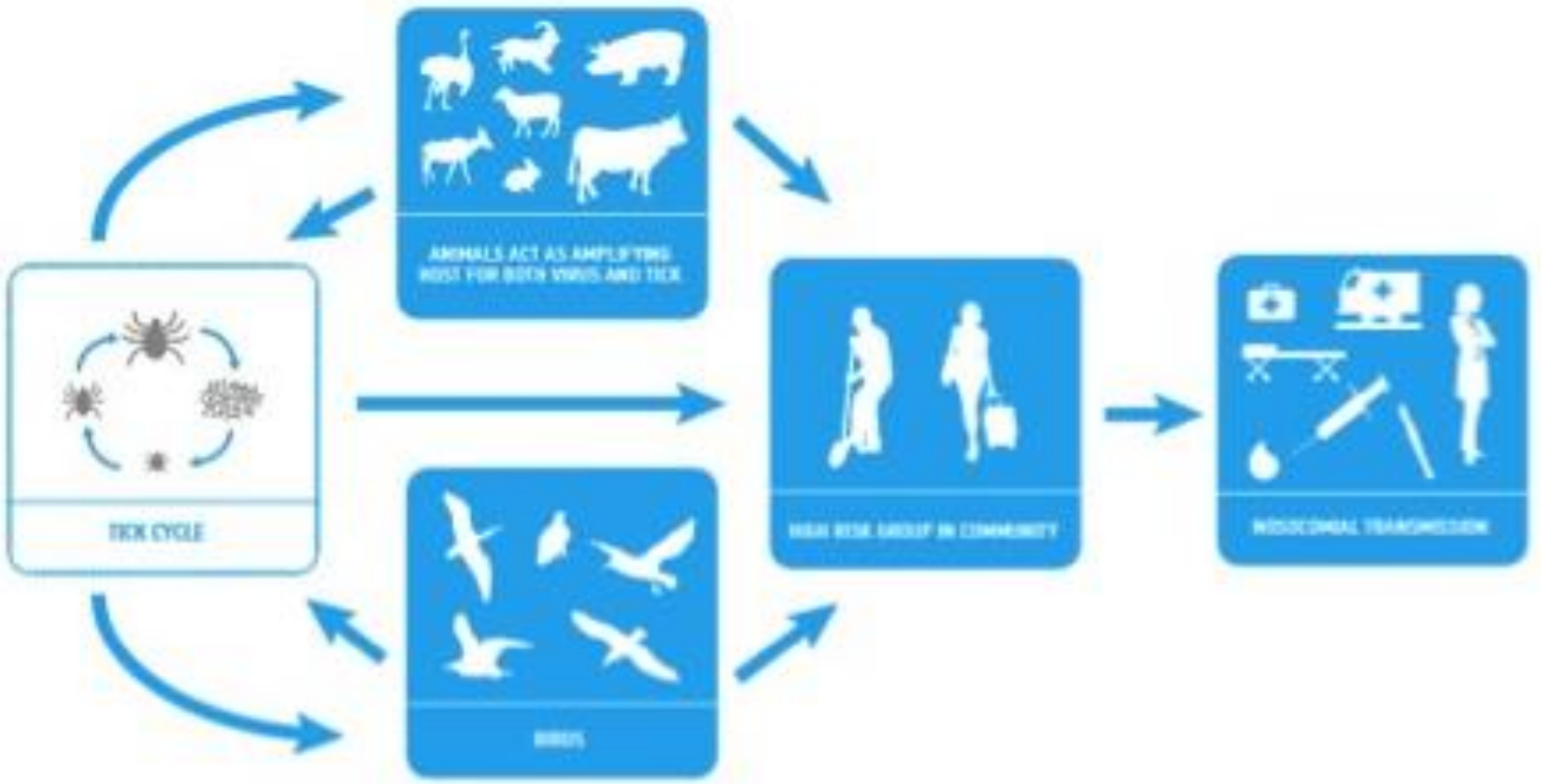
Sağlık Çalışanlarında Kırım Kongo Kanamalı Ateşi

Önder Ergönül
İlayda Arjen Kara
Melis Çeldir
Şiran Keske

Sağlık Çalışanlarında Kırım Kongo Kanamalı Ateşi



Ergonul O, In Emerging Infections, 2014, Elsevier

Amaç

- Olgular veya olgu serileri olarak bildirilen raporların bir araya getirilmesi ve tartışmalı olduğu iddia edilen ribavirin kullanımına açıklık getirilmesi

Yöntem

- PubMED, Google, Ulakbim, ProMED
- Anahtar kelimeler:
  - “Crimean Congo Hemorrhagic Fever”
  - “Nosocomial”
  - “Health care worker”, “health care personnel”
  - “Ribavirin”

Bulgular

- 1099 rapora ulaşıldı
- Uygun olan 30 makale çalışmaya dahil edildi.
- Yeni bir veri tabanı oluşturuldu.
- Veri tabanına, demografik, epidemiyolojik, klinik, profilaksi ve tedaviye dair veriler girildi.
- STATA 14v (ABD) kullanıldı
  - Ki kare, t test ve logistik regresyon kullanıldı

Sağlık Çalışanlarında Kırım Kongo Kanamalı Ateşi Riski: İran

Clinical manifestations, demographic variables, risk factors and outcome of nosocomial and index cases of Crimean-Congo hemorrhagic fever, Iran*

Case	Age, years	Sex	Bleeding manifestations	Fever	Job	Contact type/details of exposure	Outcome	Incubation period, days†
Index 1	55	M	GI bleeding, epistaxis	Yes	Shepherd	Animal contact	Dead	NA
Secondary 1	32	M	Petechia	Yes	Physician	Physical contact without gloves, blood splashing into face, performing gastric lavage	Alive	14
Tertiary 1	26	F	Hematemesis, vaginal bleeding, epistaxis, hematuria	Yes	Physician	Physical contact without gloves, blood sampling, providing intravenous access, touching skin, contact with sweat and saliva, sexual contact	Dead	12
Index 2	65	M	GI and pulmonary hemorrhage	Yes	Farmer	Animal contact	Dead	NA
Secondary 2	32	M	Petechia, purpura	Yes	Physician	Physical contact without gloves, intubation, resuscitation, blood splashing into face	Alive	22

5 sağlık çalışanından 3'ü (%) öldü

10 yıl önce İran'da ribavirin kullanımı yok.

Mardani, et al. Am J Trop Med 2009

VECTOR-BORNE AND ZOONOTIC DISEASES
Volume 14, Number 8, 2014

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Is Ribavirin Prophylaxis Effective for Nosocomial Transmission of Crimean-Congo Hemorrhagic Fever?

Rahmet Guner, Prof Dr,[1] Imran Hasanoglu,[2] Mehmet Akin Tasyaran,[1] Derya Yapar,[3] Siran Keske,[4] Tumer Guven,[2] and Gul Ruhsar Yilmaz

TABLE 1. SUMMARY OF EXPOSURE AND PROGNOSIS OF HEALTH CARE WORKERS AND PRECAUTIONS

Case	*Occupation*	*Age*	*Type of injury*	*Glove*	*Mask*	*Gown*	*Goggle*	*Bleeding in the index case*	*PCR of the index case*	*Survey of the index case*	*Post-exposure ribavirin*	*Adverse effect of ribavirin*	*PCR*
1	Doctor	27	Needlestick injury	Yes	Yes	Yes	Yes	Yes	+	Cure	Yes	None	–
2	Doctor	26	Needlestick injury	Yes	No	No	No	Yes	+	Cure	Yes	Fatigue	–
3	Doctor	34	Aerosolization of infected blood	Yes	No	No	No	Yes	+	Exitus	No	None	+
4	Nurse	30	Needlestick injury	Yes	Yes	Yes	Yes	No	+	Cure	Yes	None	–
5	Nurse	37	Needlestick injury	No	No	No	No	No	+	Cure	Yes	Fatigue, myalgia	–
6	Nurse	29	Contact of the skin and mucosal surfaces with infected blood	Yes	No	No	No	No	+	Cure	Yes	None	–
7	Doctor	27	Needlestick injury	Yes	Yes	Yes	Yes	Yes	+	Exitus	Yes	Fatigue, myalgia	–

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Conclusions

In preventing the transmission of CCHF, it should always be kept in mind, especially in serious CCHF cases, that there can always be bleeding. Barrier precautions should never be neglected. Ribavirin is the drug of choice currently available and seems effective in cases of nosocomial transmission of CCHF.

Crimean-Congo Hemorrhagic Fever among Health Care Workers, Turkey

Aysel Kocagul Celikbas, Başak Dokuzoğuz, Nurcam Baykam, Sebnem Eren Gok, Mustafa Necati Eroğlu, Kenan Midilli, Herve Zeller, and Onder Ergonul

Table 1. Clinical and laboratory findings of HCWs in whom Crimean-Congo hemorrhagic fever developed after occupational exposure, Turkey, 2004–2011*†

HCW, outcome	Body temperature, °C	Bleeding	Leukocytes/ mm^3	Platelets/ mm^3	AST	ALT	APTT	Fibrinogen	SSI
1, survived	38.5	No	800	42,000	425	346	44	225	Moderate
2, survived	37.2	No	1100	53,000	145	81	43	270	Mild
3, died	40.5	Ecchymosis, hematemesis, melena, hematuria	11,100	40,000	251	277	90	171	Severe
4, survived	40.5	No	2,900	78,000	150	110	37.4	250	Mild
5, survived	39	Epistaxis	1,800	58,000	167	129	64	218	Moderate
6, survived	40.5	No	1,800	44,000	123	216	40.5	165	Moderate
7, survived	39.1	No	3,100	13,000	418	132	40.9	170	Moderate

*HCW, health care worker; AST, aspartate aminotransferase; ALT, alanine aminotransferase; APTT, activated partial thromboplastin time ; SSI, severity score index.
†Reference values: leukocytes, 4,000–11,000/mm^3; platelets, 150,000–450,000/mm^3; AST, <50 IU/L; ALT, <50 IU/L; APTT, 24–36 sec; fibrinogen, 200–400 mg/dL.

Emerg Infect Dis 2014

Table 2. Demographic features of HCWs with occupational exposure to Crimean-Conger hemorrhagic fever virus, Turkey, 2004–2011*

Episode, outcome†	HCW age, y/sex/profession	Procedure	Transmission route	Ribavirin for postexposure prophylaxis	Ribavirin for therapy (no. d after symptom onset)	Fatal
Episode 1; survived, her baby died	36/M/nurse	Wound care	Contact with surgical wound without protective equipment	No	Yes (0)	No
	31/F/nurse	Intubation, aspiration	Aerosol and droplet and contact without protective equipment	No	No	No
Episode 2; died	28/F/nurse	Phlebotomy	Needlestick	No	Yes (3)	Yes
Episode 3; died	41/M/physician	Resuscitation	Aerosol and droplet	–	Yes (0)	No
	26/M/physician	Nasal tamponade	Indirect contact	–	Yes (0)	No
	29/M/physician	Nasal tamponade	Indirect contact	–	Yes (0)	No
Episode 4; survived	30/M/nurse	Phlebotomy	Needlestick	No	Yes (1)	No
Episode 5; survived	30/F/nurse	Phlebotomy	Needlestick	Yes	–	No
Episode 6; survived	24/F/physician	Phlebotomy	Needlestick	Yes	–	No

*HCW, health care worker; –, ribavirin not necessary.
†Outcome for the index case-patient in each episode.

Emerg Infect Dis 2014

Health Care Response to CCHF in US Soldier and Nosocomial Transmission to Health Care Providers, Germany, 2009[1]

Nicholas G. Conger, Kristopher M. Paolino, Erik C. Osborn, Janice M. Rusnak, Stephan Günther, Jane Pool, Pierre E. Rollin, Patrick F. Allan, Jonas Schmidt-Chanasit, Toni Rieger, and Mark G. Kortepeter

Table 3. Surveillance criteria and PEP, by exposure risk, for contacts of US soldier with fatal Crimean–Congo hemorrhagic fever, Germany, 2009*

Group no.	No persons	Risk	PEP and monitoring
1	18	Contact of skin or mucous membranes with contaminated blood or body fluids; present during bronchoscopy or during use of bag-valve-mask ventilation device (risk of aerosolization of infectious blood/body fluids likely) and without proper PPE†	Oral ribavirin PEP offered; baseline and at least weekly chemistries and CBC; CCHF acute/convalescent-phase titers‡; monitoring for fever (twice daily) and for CCHF symptoms and medication side effects (for 15 d in clinic)
2	31	Present during bronchoscopy or during use of bag-valve-mask ventilation device (even with proper PPE)†; known contact with contaminated blood or body fluids but wore proper PPE and without PPE breaches† (no known mucosal or skin contact with infectious blood/body fluids); laboratory workers who performed tests on specimens (removed specimens from container) and wore proper PPE†	Monitoring for fever twice daily for 15 d (in clinic); self-observation and reporting of signs or symptoms e.g., fever) for 15 d
3	41	Persons in patient's room who wore proper PPE and without PPE breaches and no contact with infectious blood/body fluids†; laboratory workers who handled laboratory specimens (but did not remove specimens from container) and wore proper PPE†	No active monitoring; self-observation and reporting of signs or symptoms (e.g., fever) for 15 d

Conger, EID, 2015

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Perspective

Probable Crimean-Congo hemorrhagic fever virus transmission occurred after aerosol-generating medical procedures in Russia: nosocomial cluster

Natalia Yurievna Pshenichnaya *, Svetlana Alexeevna Nenadskaya

Rostov State Medical University, Rostov-on-Don, Russia

This case of airborne transmission of CCHF demonstrates that during performance of any AGMPs for any CCHF patient, airborne precautions should always be added to standard precautions (particulate respirator protective to N95 or equivalent standard, eye protection, single airborne precaution room or well-ventilated setting, etc.) according to WHO guidelines[16] for all HCWs who are in a patient's room. Access to any room where the aerosol-generating procedures are performed should be extremely limited.

IJID, 2015

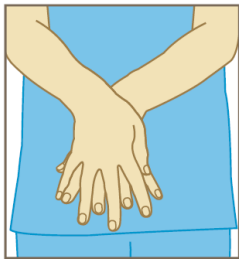
Yüksek riskli maruziyet

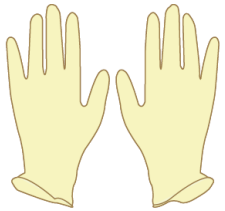
13 Ülkeden çalışma	Toplam n=130 (100)	Ölen n=31 (24%)	Sağ kalan n=99 (76%)
Turkey [2, 4, 14, 16-18]	28	2 (7)	26 (93)
Pakistan [7, 19-22]	30	5 (17)	25 (83)
Iran [5, 23-25]	11	3 (27)	8 (73)
South Africa [26]	9	3 (33)	6 (66)
Russia [6]	8	0 (0)	8 (100)
Tajikistan [27]	7	2 (29)	5 (71)
UAE [8]	5	2 (40)	3 (60)
Mauritania [28]	5	5 (100)	0 (0)
India [29, 30]	4	4 (100)	0 (0)
Kazakhstan [31]	4	4 (100)	0 (0)
Sudan [15, 32]	3	2 (66)	1 (33)
Germany [3]	2	0 (0)	2
Albania [33]	1	0 (0)	1

	Toplam n=130 (100)	Ölen n=31 (24%)	Sağ kalan n=99 (76%)	
Cinsiyet (51 sağlık çalışanı için bildirilmiş)				0.489
Kadın	21	9 (43)	12 (57)	
Erkek	30	10 (33)	20 (67)	
Ortalama Yaş(48 sağlık çalışanı için bildirilmiş)	30	32	30	0.459
Meslek				
Hemşire	43	13 (30)	30 (70)	0.541
Doktor	40	11 (28)	29 (72)	0.924
İndex olgunun ölmesi (n=115)				0.357
Ölen	100	24 (24)	76 (76)	
Sağ kalan	15	2 (13)	13 (87)	

	Toplam n=130 (100)	Ölen n=31 (24%)	Sağ kalan n=99 (76%)	
Maruziyet Gruplaması				0.201
Birinci Grup **Tanımlanmış kan ve vücut sıvıları ile doğrudan temas (iğne batması, sıçrama gibi)**	77	23 (30)	54 (70)	
İkinci Grup **Tanımlanmış kan ve vücut sıvıları ile doğrudan temas yok ama hastayla 1 m'den daha yakın temas (entübasyon, bronkoskopi, muayene, resüsitasyon gibi)**	44	7 (16)	37 (84)	
Üçüncü Grup **Yakın temas yok (aynı odada bulunmak gibi)**	4	1 (25)	3 (75)	

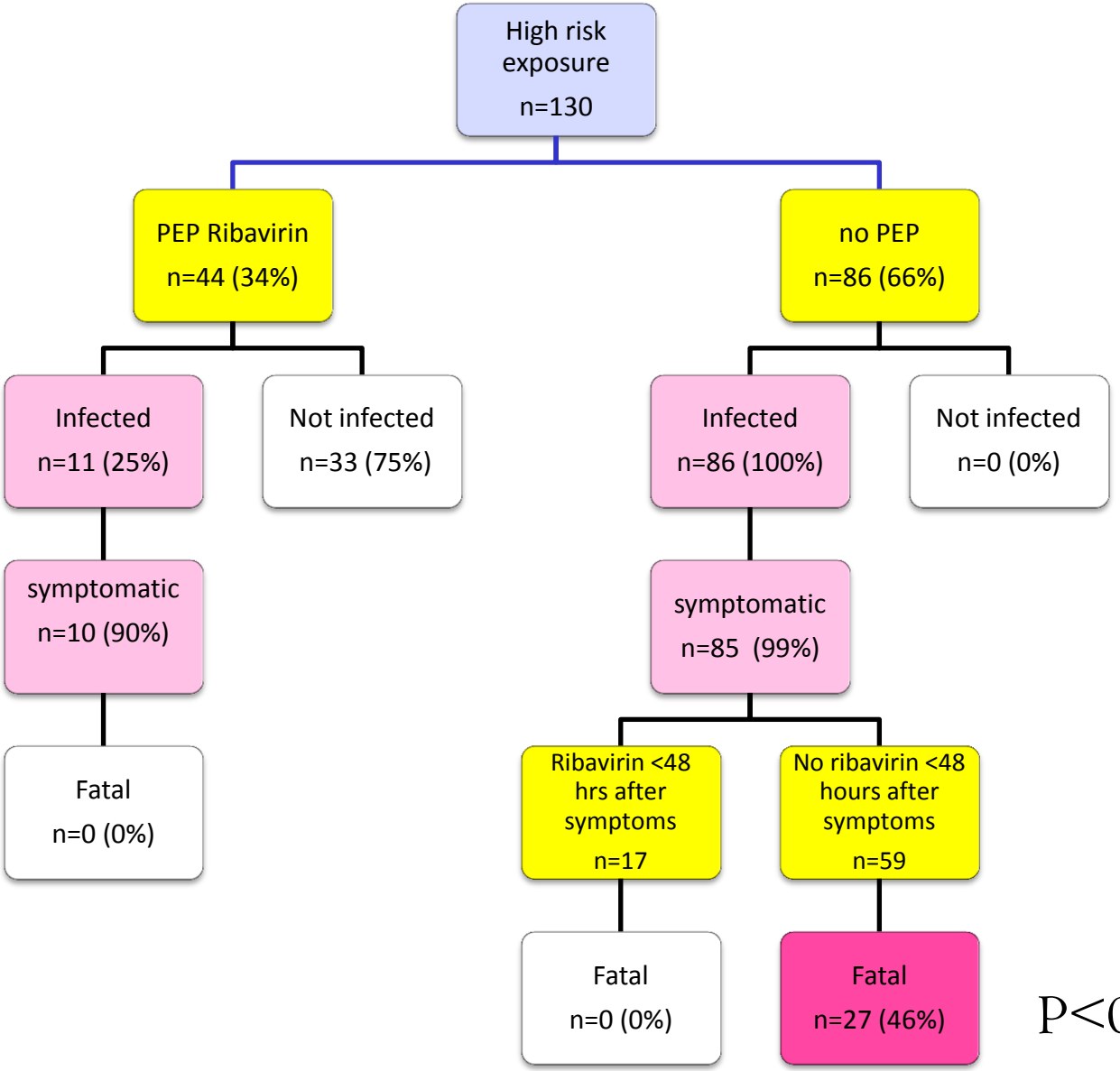
Kişisel Koruyucu Malzeme Kullanımı






	Toplam n=130 (100)	Ölen n=31 (24%)	Sağ Kalan n=99 (76%)	
Kişisel koruyucu malzeme kullanımı (n=84)				<0.001
Uygunsuz	49	18 (37)	31 (63)	
Uygun	35	0 (0)	35 (100)	

Sağlık Çalışanlarında Kırım Kongo Kanamalı Ateşi Maruziyeti: Profilaksi ve Tedavi



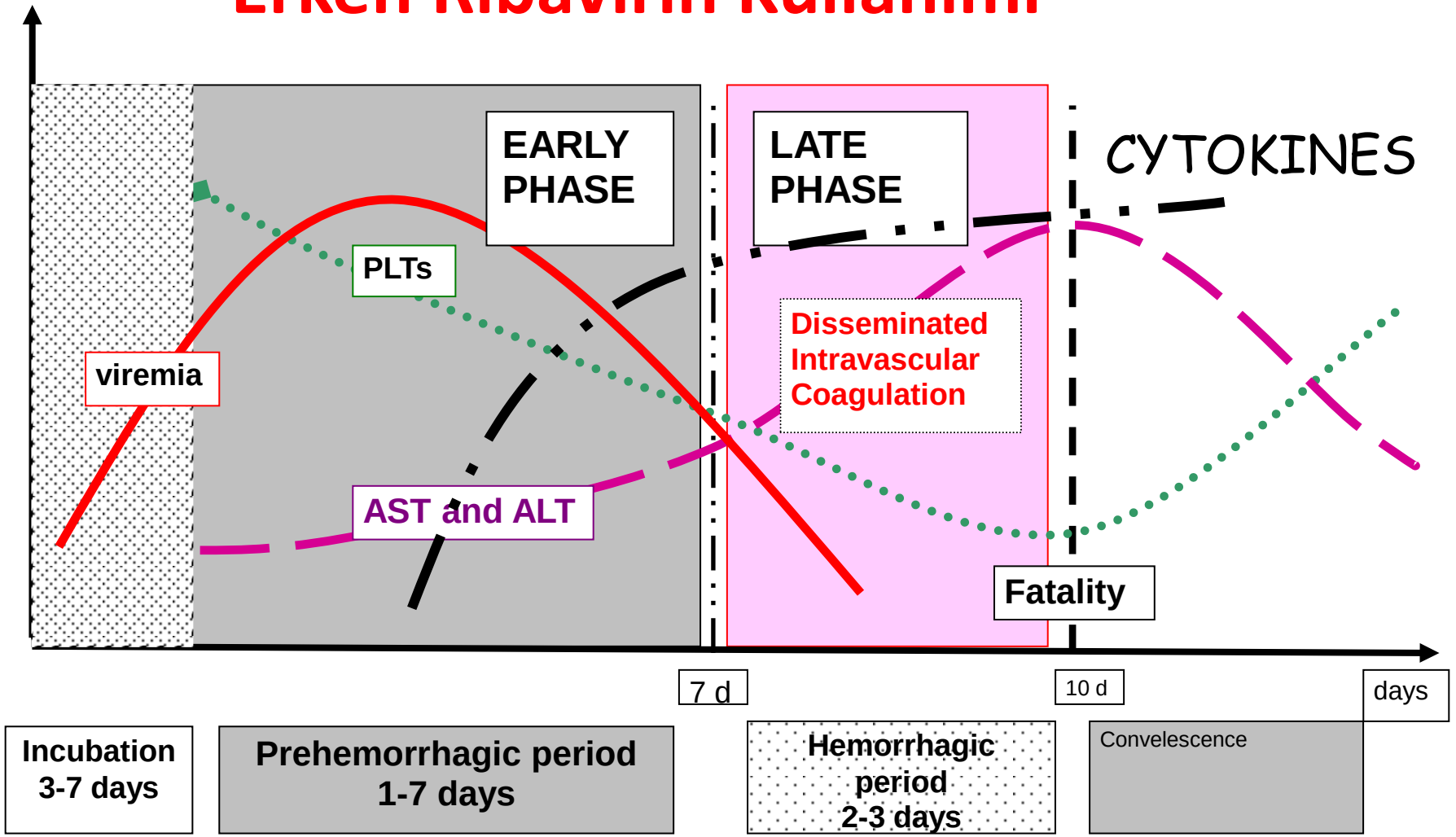
P<0.001

Ergonul, et al, in press

Ölümü Belirleyen En Önemli Faktörler (Çok değişkenli analiz)

	Odds Oranı	Güven aralığı	p
Semptomların başlamasından sonra ribavirin başlanmasında gecikme (gün)	2	1.2-3.31	0.007
Birinci riskli grup	2.3	0.22-23.4	0.480

Erken Ribavirin Kullanımı



Ribavirin erken dönemde başlanırsa etkilidir

Ergonul O. Treatment of CCHF, Antivir Res 2008

Sonuçlar

- Maruziyet sonrası yüksek riskli gruplarda ribavirin mutlaka başlanmalıdır.
- Tedavi amaçlı olarak semptomlar başladıktan sonra 48 saat içinde ribavirin başlanmalıdır.
- Profilaksi süresi ve ribavirin dozu farklılık göstermektedir.

1. Celikbas AK, et al. Emerg Infect Dis. 2014; **20**(3): 477-9.
2. Conger NG, et al. Emerg Infect Dis. 2015; **21**(1): 23-31.
3. Guner R et al. Vector Borne Zoonotic Dis. 2014; **14**(8): 601-5.
4. Mardani M, et al. Am J Trop Med Hyg. 2009; **81**(4): 675-8.
5. Pshenichnaya NY, et al. Int J Infect Dis. 2015; **33**: 120-2.
6. Altaf A, et al. Trop Med Int Health. 1998; **3**(11): 878-82.
7. Suleiman MN, et al. Lancet. 1980; **2**(8201): 939-41.
8. Mardani M, et al. Am J Trop Med Hyg. 2007; **76**(3): 443-5.
9. Ergonul O, et al. Int J Infect Dis. 2007; **11**: 48-51.
10.van de Wal BW , et al. S Afr Med J. 1985; **68**(10): 729-32.
11. Fisher-Hoch SP, et al. Lancet. 1995; **346**(8973): 472-5.
12.Harxhi A, et al. Infection. 2005; **33**(4): 295-6.
13.Tutuncu EE, et al. Scand J Infect Dis. 2009: 1-3.
14.Elata AT, et al. Virol J. 2011; **8**: 303.
15.Bulut C, et al. 19th European Congress of Clinical Microbiology and Infectious Diseases; 2009; Helsinki: Clinical Microbiology and Infection; 2009.
16.Tulek N, et al. 20th European Congress of Clinical Microbiology and Infectious Diseases; 2010; Vienna, Austria; 2010.
17.Parlak E, et al. J Microbiol Infect Dis. 2015; **5**(1): 5-9.
18.Burney MI, et al. Am J Trop Med Hyg. 1980; **29**(5): 941-7.
19.Bangash SA, et al. J Pak Med Assoc. 2003; **53**(1): 39-41.

20. Athar MN, et al. Am J Trop Med Hyg. 2003; **69**(3): 284-7.
21.Hasan Z, et al. J Med Virol. 2013; **85**(3): 501-4.
22.Naderi HR, et al. Epidemiol Infect. 2011; **139**(6): 862-6.
23.Naderi HR, et al. Am J Trop Med Hyg. 2013; **88**(3): 469-71.
24.Chinikar S, et al. Travel Med Infect Dis. 2013; **11**(4): 252-5.
25.Richards GA. Med J. 2015; **105**(9): 709-12.
26.Tishkova FH, et al. Vector Borne Zoonotic Dis. 2012; **12**(9): 722-6.
27.Nabeth P, et al. Emerg Infect Dis. 2004; **10**(12): 2143-9.
28.Mishra AC, et al. Lancet. 2011; **378**(9788): 372.
29.Patel AK, et al. J Assoc Physicians India. 2011; **59**: 585-9.
30.ProMED-mail. Crimean-Congo Hemorrhagic Fever in South Kazakhstan. 2009 15 July 2009 [cited 2016 21 February 2016]; Available from: http://promedmail.org/
31.Aradaib IE, et al. PLoS Negl Trop Dis. 2011; **5**(5): e1159.
32.Papa A, et al. Eur J Clin Microbiol Infect Dis. 2002; **21**(8): 603-6.