ATEŞLİ ÇOCUĞA YAKLAŞIM

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Ankara Üniversitesi Tıp Fakültesi
Çocuk Enfeksiyon Hastalıkları Bilim Dalı

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Ateş

THE OFFICIAL NEWSMAGAZINE OF THE AMERICAN ACADEMY OF PEDIATRICS

DEDICATED TO THE HEALTH OF ALL CHILDREN

AAP News

Volume 32 • Number 3
March 2011
www.aapnews.org

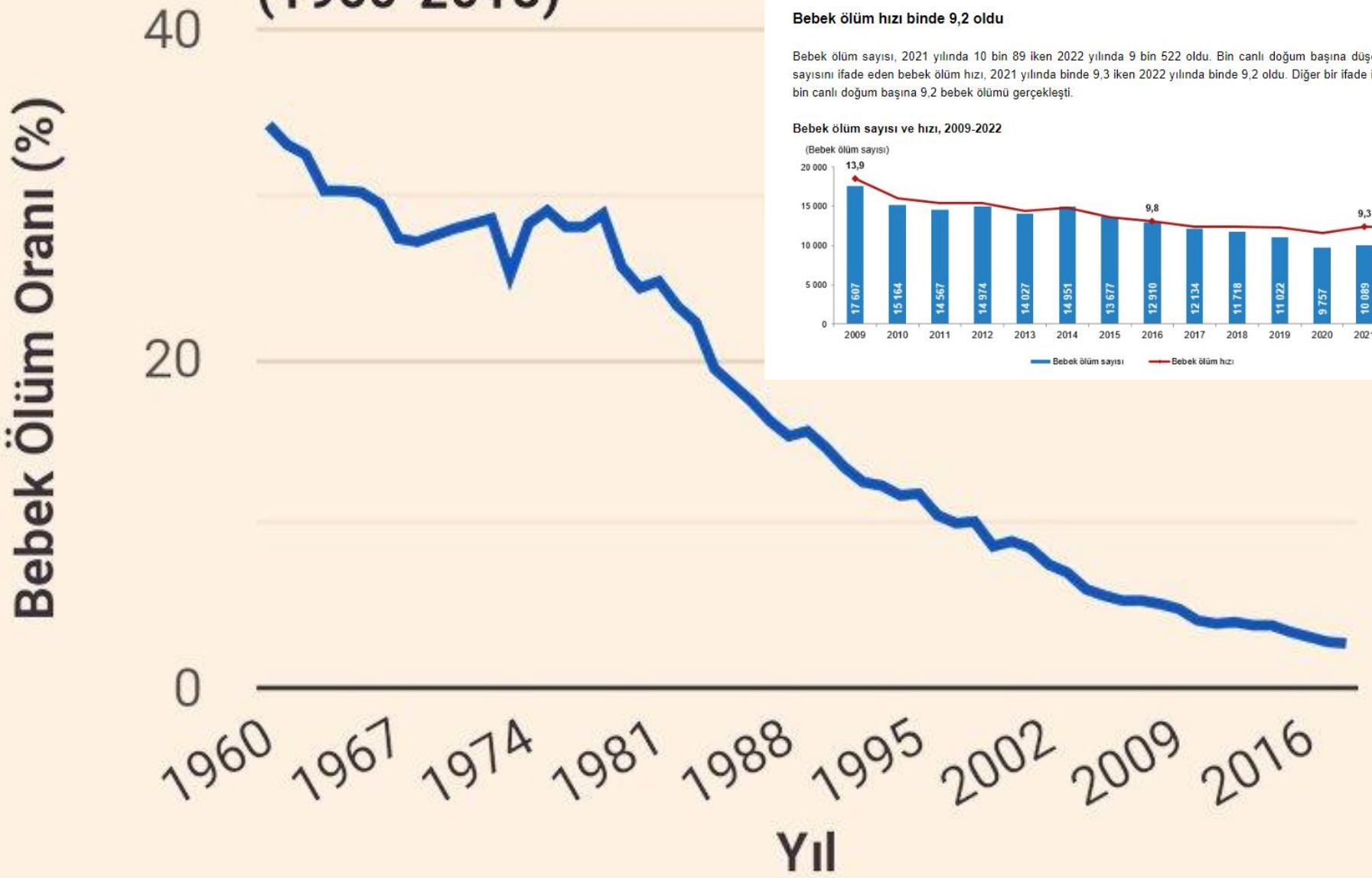
Fighting 'fever phobia'

Fever, in and of itself, is not known to endanger a generally healthy child and actually may be beneficial. Still, many caregivers panic when they see the number on the thermometer rise past 98.6 degrees and rush to give their child acetaminophen or ibuprofen.

A new AAP clinical report addresses the state of knowledge about antipyretic usage in children, including common concerns, indications, treatment goals, single or combination therapy, and instructions for caregivers. It also highlights the need to educate patients and families about fever and "fever phobia."

See story on page 8.

Grafik 4d: Yıllara Göre Türkiyede Ölümler İçinde Bebek (0 Yaş) Ölüm Oranı (%) (1960-2018)



Bebek ölüm hızı binde 9,2 oldu

Bebek ölüm sayısı, 2021 yılında 10 bin 89 iken 2022 yılında 9 bin 522 oldu. Bin canlı doğum başına düşen bebek ölüm sayısını ifade eden bebek ölüm hızı, 2021 yılında binde 9,3 iken 2022 yılında binde 9,2 oldu. Diğer bir ifade ile 2022 yılında bin canlı doğum başına 9,2 bebek ölümü gerçekleşti.

Bebek ölüm sayısı ve hızı, 2009-2022

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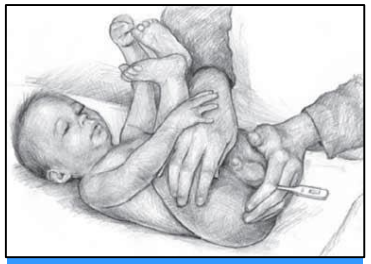
Nedir?

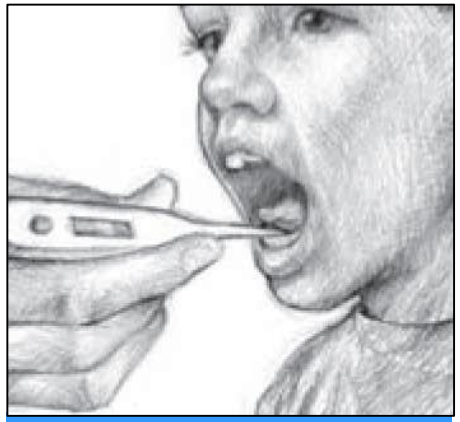
Vücut sıcaklığının kontrollü bir biçimde normalin üstüne çıkmasıdır.

ATEŞ
Termometreler

- Cıvalı Termometreler
- Dijital termometreler
  - Digital çok amaçlı termometre
  - Temporal arter termometresi
  - Timpanik termometre
- Plastik Şerit Termometreler
- Giyilebilir Termometreler



Rektal



Oral

Aksiller

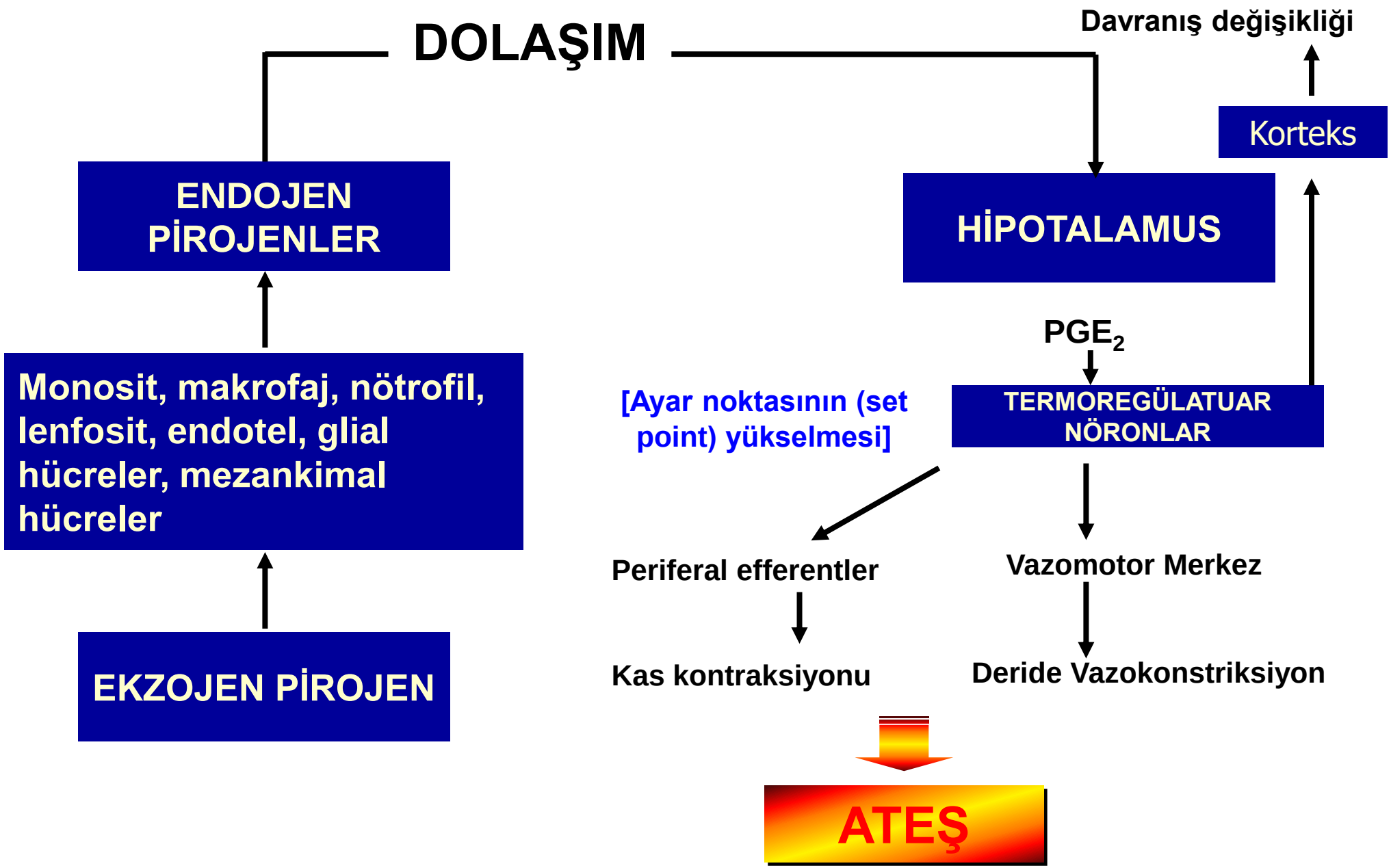
Temporal (Alın)

Giyilebilir Termometre

Timpanik

VÜCUT SICAKLIĞININ HANGİ DEĞERLERİN ÜSTÜNE ÇIKMASI ATEŞ OLARAK KABUL EDİLİR?

- **Aksiller** **>37.2ºC**
- **Oral** **>37.8ºC**
- **Rektal** **≥38ºC**
- **Timpanik** **>38ºC (Rektal mod) >37.5ºC (Oral mod)**
- **Alın** **>38ºC**


DOLAŞIM
Davranış değişikliği
Korteks
ENDOJEN PİROJENLER
HİPOTALAMUS
Monosit, makrofaj, nötrofil, lenfosit, endotel, glial hücreler, mezankimal hücreler
PGE2
[Ayar noktasının (set point) yükselmesi]
TERMOREGÜLATUAR NÖRONLAR
Periferal efferentler
Vazomotor Merkez
Kas kontraksiyonu
Deride Vazokonstriksiyon
EKZOJEN PİROJEN
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ATEŞ, VÜCUDUN ZARARLI ETKENLERE KARŞI GELİŞTİRDİĞİ ADAPTİF BİR YANITTIR.

Vücut sıcaklığı arttığında:

1. İnflamasyon sistemi daha iyi çalışır
2. Mikrobiyal çoğalma hızı azalır

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Neden Olduğu Değişiklikler

- Metabolik hızda artma
- Oksijen tüketimde artma
- Karbondioksit üretiminde artma
- Kardiyak output artışı
- Solunum iş yükünde artma
- Konvulsiyon eşiğinde düşme


Ouuu... Bu hakkaten canımı yakacak.

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Volume 32 • Number 3
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Fever! Fever! Fever!

Clinical report addresses educating parents to reduce 'fever phobia'

by Hank Farrar, M.D., FAAP, and
Janice E. Sullivan, M.D., FAAP

Although many parents administer antipyretics to a child with minimal or no fever, this report emphasizes that the primary goal of treating the febrile child should be improvement of the child's overall comfort rather than normalization of body temperature.

It is 3 a.m. and you get your third call of the night about a child with fever. A parent asks about giving antipyretics prior to routine immunizations. You are educating first-time parents about fever prior to discharge of their infant from the newborn nursery. These scenarios are common in everyday practice.

Fever accounts for one-third of all presenting conditions in children. What guidance is available to pediatricians and pediatric health care providers regarding fever treatment or prophylaxis and education for parents/caregivers?

A new AAP clinical report, *Fever and Antipyretic Use in Children*, summarizes recommendations and controversies related to the use of antipyretics in pediatrics (*Pediatrics.* 2011;127:580-587). The report, from the AAP Section on Clinical Pharmacology and Therapeutics and the Committee on Drugs, addresses the state of knowledge about antipyretic usage in pediatric patients, including common concerns, indications, treatment goals, single or combination therapy, and instructions for caregivers. Limited evidence-based information is available regarding antipyretic therapy, combination therapy and the role of fever in the natural history of an illness.

Need to educate

The report highlights the need to educate patients and families about fever and "fever phobia."

Fever is a physiological mechanism that has beneficial effects in fighting infection. Fever, in and of itself, is not known to endanger of an illness or that it causes long-term neurological complications. Possible exceptions may be children with certain underlying chronic disease (i.e., myocardial dysfunction or heart failure) or acute illness (i.e., acute myocarditis, shock, etc.) that may result in limited tolerance of the increased metabolic demands caused by a fever.

Many physicians continue to encourage the use of antipyretics, believing that most benefits result from improved comfort and the accompanying improvements in activity and feeding, less irritability, and a more reliable sense of the child's overall clinical condition.

Guidelines for the symptomatic management of fever in children: systematic review of the literature and quality appraisal with AGREE II

Elena Chiappini, Barbara Bortone, Luisa Galli, Maurizio de Martino

BMJ Open 2017;**7**:e015404.

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Italian Pediatric Society (SIP)
South African
National Institute for Health and Care Excellence (NICE)
New South Wales Ministry of Health (NSW)
South Australian Ministry of Health (SA)
World Health Organization (WHO)

Common messages

1. Antipyretics are indicated only in cases of discomfort associated with fever and not with the sole aim of reducing body temperature.
2. Recommended antipyretics are paracetamol or ibuprofen, according to the child's age, weight and characteristics.
3. The use of antipyretics does not prevent either febrile convulsions or reactions to vaccines.
4. Tepid sponging and alcoholic baths are not recommended for the treatment of fever.
5. The use of cough and cold medicine is discouraged because of the risks of overdoses and interactions.
6. Caution is recommended using antipyretics in chronic diseases such as pre-existing hepatic and renal impairment or in cases of diabetes, cardiac disease and severe malnutrition.
7. In asthmatic children with fever, paracetamol does

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ATEŞ
Üstünde Uzlaşılmış Mesajlar

1. Ateş düşürücüler, sadece ateşe bağlı rahatsızlık durumunda kullanılmalıdır, amaç yalnızca vücut sıcaklığını normale düşürmek değildir.

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Üstünde Uzlaşılmış Mesajlar

2. Önerilen ateş düşürücüler, çocuğun yaşına, kilosuna ve özelliklerine göre verilen Parasetamol veya İbuprofendir.

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Üstünde Uzlaşılmış Mesajlar

3. Ateş düşürücülerin kullanımı, ateşli havaleleri veya aşılara karşı reaksiyonları önlemez.

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Üstünde Uzlaşılmış Mesajlar

4. Ateşin tedavisi için ılık uygulama ve alkollü banyolar önerilmez.

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5. Öksürük ve soğuk algınlığı ilaçlarının kullanımı, doz aşımı ve ilaç etkileşim riskleri nedeniyle, önerilmez.

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Üstünde Uzlaşılmış Mesajlar

6. Ateş düşürücülerin önceden var olan karaciğer ve böbrek yetmezliği gibi kronik hastalıklarda veya diyabet, kalp hastalığı ve şiddetli malnütrisyon durumlarında dikkatli kullanılması önerilir.

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Üstünde Uzlaşılmış Mesajlar

7. Ateşi olan astımlı çocuklarda Parasetamol astım semptomlarını kötüleştirmiyor gibi görünmektedir.

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ATEŞ
Tedavi

Çocuklarda ateş tedavisinde birinci basamak ilaç parasetamoldür.

T.C. Sağlık Bakanlığı
Kanıta Dayalı Tıp Rehberi

İlaç tedavisi

Antipiretik ilaçlar sadece gerektiği durumda kullanılmalıdır.

Birinci basamak ilaç parasetamoldür.

Tek doz 15 mg/kg, maksimum doz 60 mg/kg/24 saat. İlaç uygulandıktan sonra bir iki saat içinde sıcaklık 1,5 ºC azalır. Etki süresi 5–6 saattir.

Çocuklarda kullanım için uygun diğer antipiretikler: Ibuprofen (>6 kg) ve naproksen (>12 ay). Bunların antipiretik etkisi en az parasetamol kadar iyidir ve etki süresi daha uzundur.

Aspirin (asetilsalisilik asit) çocuklarda antipiretik ilaç olarak kullanılmamalıdır; çünkü kullanımı Reye sendromu riskini artırır.

ATEŞ
Tedavi

	Parasetamol[1,2]	Ibuprofen[3-6]
Endikasyon	Çocuklarda hafif ve orta şiddetli ağrılar ile ateşin semptomatik tedavisi	6 ay ve üzerindeki çocuklarda ateşin düşürülmesi ve hafif ve orta derecedeki ağrıların giderilmesi amacıyla kısa süreli olarak
Yaş	3 ay ve üzeri çocuklarda[1*]	6 ay ve üzeri çocuklarda (> 7 kg)
GİS yan etkiler	**Yaygın:** Bulantı, diyare, dispepsi, flatulans, karın ağrısı, konstipasyon, kusma	**Yaygın:** Dispepsi, diyare, bulantı, kusma, abdominal ağrı, flatulans, konstipasyon, melana, hematemez, **gastrointestinal hemoraji**[2*]
Astımlı çocuklarda	**Çok seyrek:** Bronkospazm[3*]	Geçmişinde veya halen bronşiyal astım öyküsü bulunan hastalarda bronkospazm gelişmesini tetikleyebilir.[3*]
Kanama zamanı	Parasetamol ile varfarin veya kumarin (antikoagülant) türevleri arasındaki etkileşimler, INR* değerinde bir artışa ve kanama riskinde bir artışa neden olabilir.[4*]	Diğer NSAİİ'ler gibi, trombosit agregasyonunun inhibe edebilir ve kanama zamanını uzatabilir.

ATEŞ
Tedavi

ANTİPİRETİK İLAÇ TEDAVİSİ

Parasetamol	**10-15 mg/kg/doz, 4-6 saatte bir**
İbuprofen	**5-10 mg/kg/doz, 6-8 saatte bir**

ATEŞ
Tedavi

ANTİPİRETİK İLAÇ TEDAVİSİ

Parasetamol	10-15 mg/kg/doz, 4-6 saatte bir
İbuprofen	5-10 mg/kg/doz, 6-8 saatte bir

Ketoprofen

Aspirin

Metamizol

Nimesulid

ATEŞ
Tedavi

NEDENE YÖNELİK TEDAVİ

Enfeksiyonun tedavisi

Hastalığa özgü tedavi

ODAĞI BİLİNMEYEN AKUT ATEŞ

Odak Neresi?

ODAĞI BİLİNMEYEN AKUT ATEŞ

Odak Neresi?

Fever Without A Focus
Fever Without A Source
Fever Without Apparent Source
Fever Without Localizing Signs

CLINICAL PRACTICE GUIDELINE

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Evaluation and Management of Well-Appearing Febrile Infants 8 to 60 Days Old

Robert H. Pantell, MD, FAAP,[a] Kenneth B. Roberts, MD, FAAP,[b] William G. Adams, MD, FAAP,[c] Benard P. Dreyer, MD, FAAP,[d] Nathan Kuppermann, MD, MPH, FAAP, FACEP,[e] Sean T. O'Leary, MD, MPH, FAAP,[f] Kymika Okechukwu, MPA,[g] Charles R. Woods Jr, MD, MS, FAAP[h] SUBCOMMITTEE ON FEBRILE INFANTS

To cite: Pantell RH, Roberts KB, Adams WG, et al. Clinical Practice Guideline: Evaluation and Management of Well-Appearing Febrile Infants 8 to 60 Days Old. *Pediatrics*. 2021;148(2):e2021052228

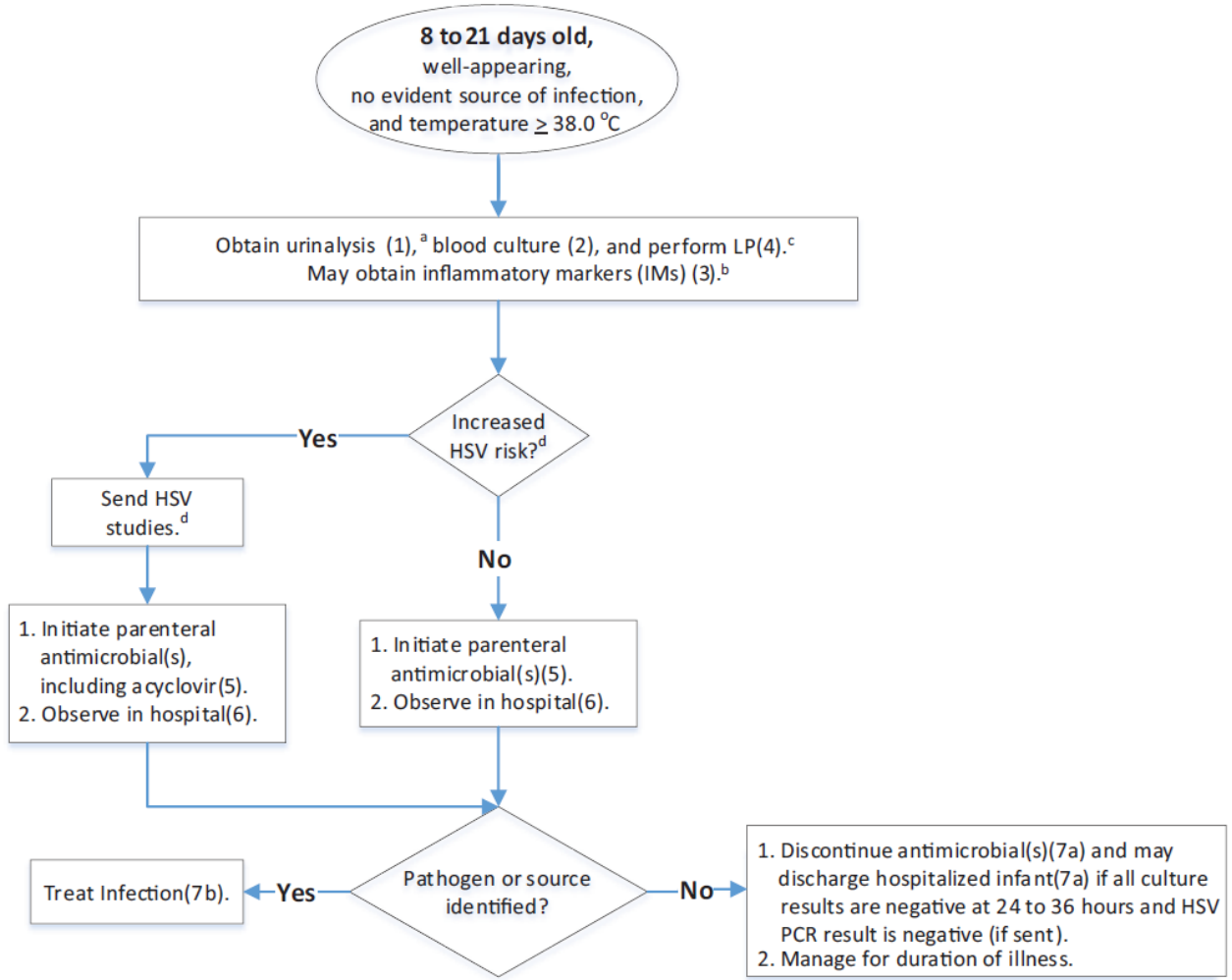
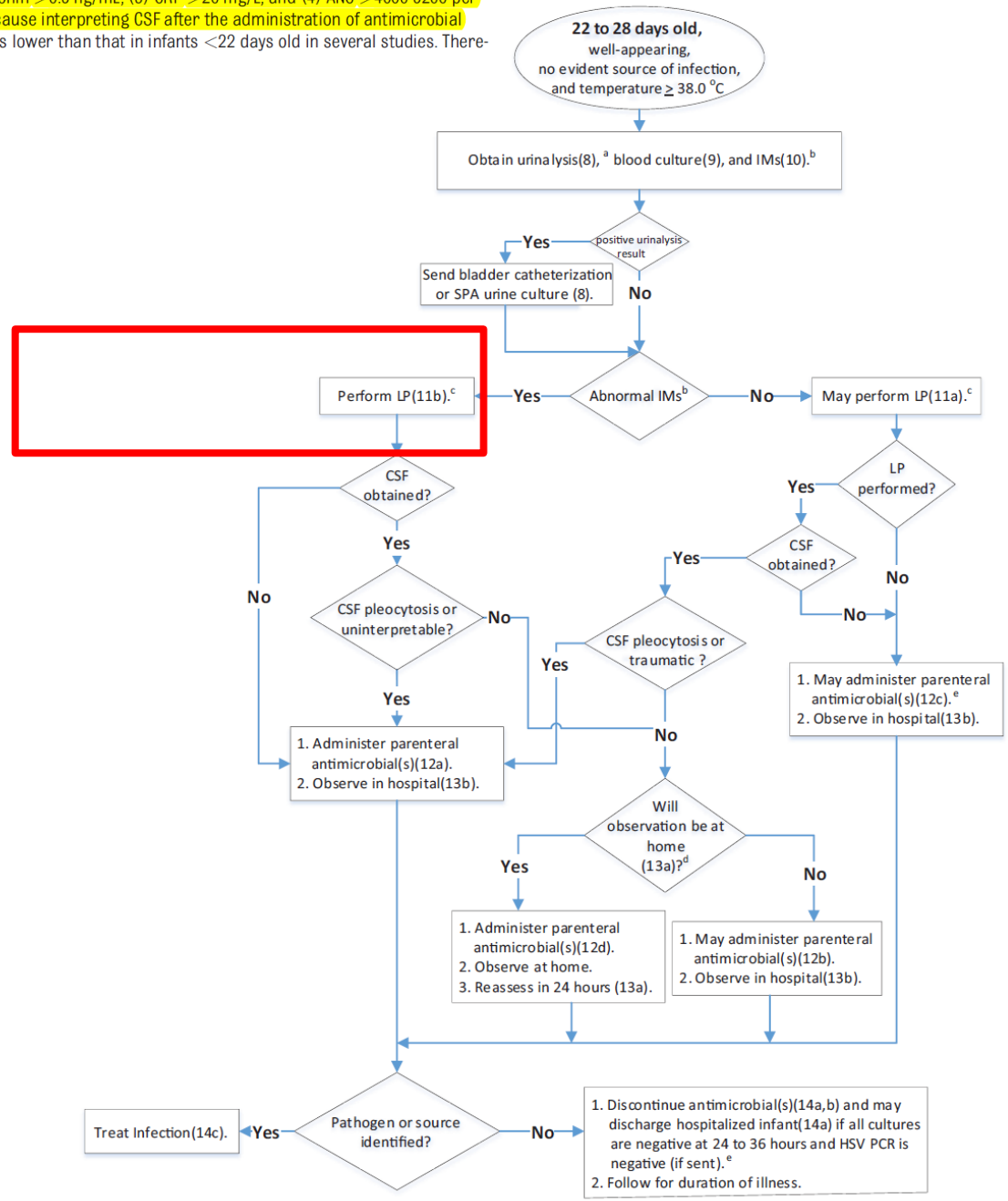


FIGURE 1 Algorithm for 8- to 21-day-old infants. [a] KAS references are shown in parentheses. [b] Laboratory values of inflammation are considered elevated at the following levels: (1) procalcitonin >0.5 ng/mL, (2) CRP >20 mg/L, and (3) ANC >4000 to 5200 per mm^3. Although we recommend all infants in this age group have a complete sepsis workup, receive parenteral antimicrobial agents, and be monitored in a hospital, knowing IM results can potentially guide ongoing clinical decisions. [c] Send CSF for cell count, Gram stain, glucose, protein, bacterial culture, and enterovirus PCR (if available) if pleocytosis is present and during periods of increased local enterovirus prevalence. [d] HSV should be considered when there is a maternal history of genital HSV lesions or fevers from 48 hours before to 48 hours after delivery and in infants with vesicles, seizures, hypothermia, mucous membrane ulcers, CSF pleocytosis in the absence of a positive Gram stain result, leukopenia, thrombocytopenia, or elevated alanine aminotransferase levels. For further discussion, see the current *Red Book*. Recommended HSV studies are CSF PCR; HSV surface swabs of the mouth, nasopharynx, conjunctivae, and anus for an HSV culture (if available) or PCR assay; alanine aminotransferase; and blood PCR.

FIGURE 2 Algorithm for 22- to 28-day-old infants. [a] KAS references are shown in parentheses. [b] If available, procalcitonin should be obtained along with ANC or CRP. If procalcitonin is unavailable, both ANC and CRP should be obtained, and a temperature >38.5°C is considered abnormal. IMs are considered abnormal at the following levels: (1) temperature >38.5°C, (2) procalcitonin >0.5 ng/mL, (3) CRP >20 mg/L, and (4) ANC >4000 5200 per mm^3. [c] LP is recommended before administration of antimicrobial agents because interpreting CSF after the administration of antimicrobial agents is difficult. However, the risk of meningitis in 22- to 28-day-old infants is lower than that in infants <22 days old in several studies. There-



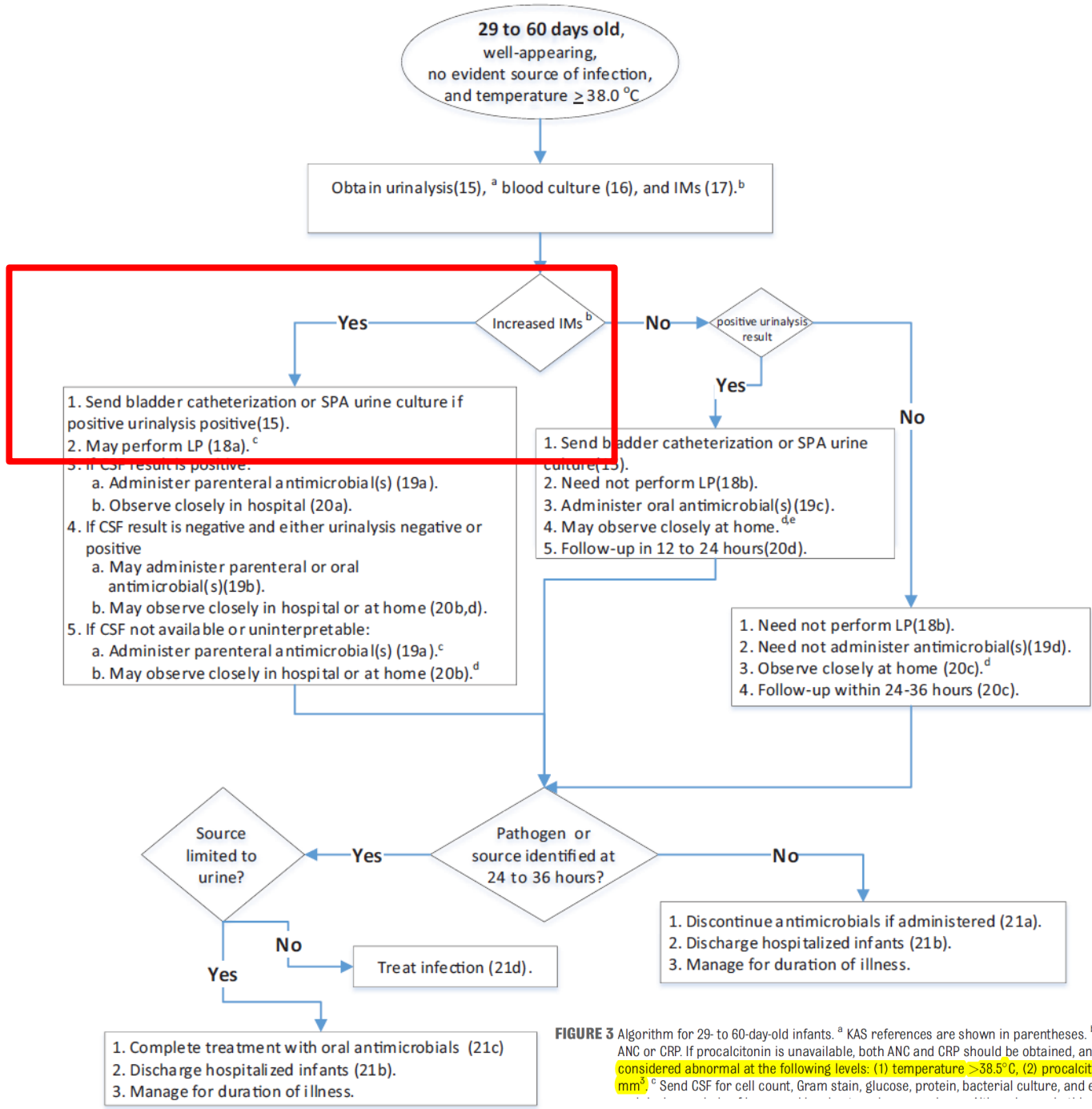


FIGURE 3 Algorithm for 29- to 60-day-old infants. [a] KAS references are shown in parentheses. [b] If available, procalcitonin should be obtained along with ANC or CRP. If procalcitonin is unavailable, both ANC and CRP should be obtained, and a temperature >38.5°C is considered abnormal. IMs are considered abnormal at the following levels: (1) temperature >38.5°C, (2) procalcitonin >0.5 ng/mL, (3) CRP >20 mg/L, (4) ANC >4000 to 5200/mm^3. [c] Send CSF for cell count, Gram stain, glucose, protein, bacterial culture, and enterovirus PCR (if available) if CSF pleocytosis is present

Table 220.2 Management of Fever Without Source in Infants 0-36 Months Old

GROUP	MANAGEMENT
Any toxic-appearing child 0–36 mo and temperature ≥38°C (100.4°F)	Hospitalize, cultures (blood, urine, CSF) plus other tests*, parenteral antibiotics
WELL-APPEARING CHILD	
Child <22 days and temperature ≥38°C (100.4°F)	Hospitalize, cultures (blood, urine, CSF) plus other tests*, parenteral antibiotics
Child 22–60 days and temperature ≥38°C (100.4°F)	**Three-Step Process** 1. Determine risk based on history, physical examination, and laboratory studies. Low risk: • Uncomplicated medical history • Well-appearing physical examination • Normal laboratory studies • Urine: negative leukocyte esterase and nitrite, ≤5 WBC/hpf centrifuged and <10 WBC/hpf uncentrifuged • Inflammatory markers: temperature ≤38.5°C, procalcitonin ≤0.5 ng/mL, CRP ≤20 mg/L, absolute neutrophil count ≤4,000-5,200/mm^3 • Stool studies if diarrhea (no RBC and <5 WBC/hpf) 2. If child *fulfills all low-risk criteria*, use age to determine need for LP, parenteral antimicrobials, and hospital observation. • **Age 22-28 days**: Obtain UA, blood culture, inflammatory markers. May perform LP. May administer parenteral antimicrobials. Observe in hospital. • **Age 29-60 days old**: Obtain UA, blood culture, inflammatory markers. Need not perform LP. Need not administer antimicrobials. Observe closely at home with follow-up within 24-36 hr. 3. If child does not fulfill all low-risk criteria, use age and lab results to determine need for LP, antimicrobials, and hospital observation. • **Age 22-28 days** with abnormal UA and normal inflammatory markers: May perform LP. Administer parenteral antimicrobials. Observe in hospital. • **Age 22-28 days** with abnormal inflammatory markers: Perform LP. If CSF pleocytosis, CSF uninterpretable, or abnormal UA, administer parenteral antimicrobials and observe in hospital. If CSF and UA are normal, may observe at home after parenteral antimicrobials or observe in the hospital with or without parenteral antimicrobials. • **Age 29-60 days** with abnormal UA and normal inflammatory markers: Administer oral antimicrobials. May observe closely at home with follow-up in 12-24 hr. • **Age 29-60 days** with abnormal inflammatory markers: May perform LP. If CSF pleocytosis, administer parenteral antimicrobials and observe in hospital. If CSF is normal, may administer parenteral or oral antimicrobials and may observe closely in hospital or at home. If CSF is not available or uninterpretable, administer parenteral antimicrobials and may observe closely in hospital or at home.
Child 2-36 mo and temperature 38–39°C (100.4–102.2°F)	Reassurance that diagnosis is likely self-limited viral infection, but advise return with persistence of fever, temperatures >39°C (102.2°F), and/or new signs and symptoms.
Child 2-36 mo and temperature >39°C (102.2°F)	**Two-Step Process** 1. Determine immunization status. 2. If received conjugate pneumococcal and *Haemophilus influenzae* type b vaccines, obtain urine studies (urine WBC, leukocyte esterase, nitrite, and culture) for all females, all males <6 mo old, all uncircumcised males <2 yr, and all children with recurrent urinary tract infections. If did not receive conjugate pneumococcal and *H. influenzae* type b vaccines, manage according to the 1993 Guidelines (see Baraff et al. *Ann Emerg Med.* 1993;22:1198–1210).

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Child 2-36 mo and temperature 38–39°C (100.4–102.2°F)	Reassurance that diagnosis is likely self-limited viral infection, but advise return with persistence of fever, temperatures >39°C (102.2°F), and/or new signs and symptoms.
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Any toxic-appearing child 0–36 mo and temperature ≥38°C (100.4°F)	Hospitalize, cultures (blood, urine, CSF) plus other tests*, parenteral antibiotics
WELL-APPEARING CHILD Child <22 days and temperature ≥38°C (100.4°F)	Hospitalize, cultures (blood, urine, CSF) plus other tests*, parenteral antibiotics
Child 22–60 days and temperature ≥38°C (100.4°F)	**Three-Step Process** 1. Determine risk based on history, physical examination, and laboratory studies. Low risk: • Uncomplicated medical history • Well-appearing physical examination • Normal laboratory studies • Urine: negative leukocyte esterase and nitrite, ≤5 WBC/hpf centrifuged and <10 WBC/hpf uncentrifuged • Inflammatory markers: temperature ≤38.5°C, procalcitonin ≤0.5 ng/mL, CRP ≤20 mg/L, absolute neutrophil count ≤4,000-5,200/mm^3 • Stool studies if diarrhea (no RBC and <5 WBC/hpf) 2. If child *fulfills all low-risk criteria*, use age to determine need for LP, parenteral antimicrobials, and hospital observation. • **Age 22-28 days**: Obtain UA, blood culture, inflammatory markers. May perform LP. May administer parenteral antimicrobials. Observe in hospital. • **Age 29-60 days old**: Obtain UA, blood culture, inflammatory markers. Need not perform LP. Need not administer antimicrobials. Observe closely at home with follow-up within 24-36 hr. 3. If child does not fulfill all low-risk criteria, use age and lab results to determine need for LP, antimicrobials, and hospital observation. • **Age 22-28 days** with abnormal UA and normal inflammatory markers: May perform LP. Administer parenteral antimicrobials. Observe in hospital. • **Age 22-28 days** with abnormal inflammatory markers: Perform LP. If CSF pleocytosis, CSF uninterpretable, or abnormal UA, administer parenteral antimicrobials and observe in hospital. If CSF and UA are normal, may observe at home after parenteral antimicrobials or observe in the hospital with or without parenteral antimicrobials. • **Age 29-60 days** with abnormal UA and normal inflammatory markers: Administer oral antimicrobials. May observe closely at home with follow-up in 12-24 hr. • **Age 29-60 days** with abnormal inflammatory markers: May perform LP. If CSF pleocytosis, administer parenteral antimicrobials and observe in hospital. If CSF is normal, may administer parenteral or oral antimicrobials and may observe closely in hospital or at home. If CSF is not available or uninterpretable, administer parenteral antimicrobials and may observe closely in hospital or at home.
Child 2-36 mo and temperature 38–39°C (100.4–102.2°F)	Reassurance that diagnosis is likely self-limited viral infection, but advise return with persistence of fever, temperatures >39°C (102.2°F), and/or new signs and symptoms.
Child 2-36 mo and temperature >39°C (102.2°F)	**Two-Step Process** 1. Determine immunization status. 2. If received conjugate pneumococcal and *Haemophilus influenzae* type b vaccines, obtain urine studies (urine WBC, leukocyte esterase, nitrite, and culture) for all females, all males <6 mo old, all uncircumcised males <2 yr, and all children with recurrent urinary tract infections. If did not receive conjugate pneumococcal and *H. influenzae* type b vaccines, manage according to the 1993 Guidelines (see Baraff et al. *Ann Emerg Med.* 1993;22:1198–1210).

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Nedeni Nedir?

Fever of Unknown Origin
Pyrexia of Unknown Origin

İlk kez 1961 yılında Petersdorf ve Beeson

1. En az üç hafta süren
2. Bir hafta süreyle hastanede yapılan incelemelere karşın nedeni belirlenemeyen
3. Belgelenmiş 38.3°C üzerinde ateş

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Çocuklarda Nedenler

ÇOCUKLARDA NEDENLER					
YAZAR HASTA SAYISI	**ENFEKSİYONLAR**	**MALİGNİTE**	**KVH/ OTOİMMÜN**	**DİĞER**	**TANI KONULAMAYAN**
Pizzo 100	%52	%6	%20	%10	%12
McLung 99	%29	%8	%11	%19	%33
Lohr 54	%33	%13	%20	%15	%8
Mouaket 221	%78	%2	%3	%0	%15
Steele 109	%22	%2	%6	%3	%67
Çiftçi 102	%44.2	%11.7	%6.8	%24.5	%12.8

Annals of Tropical Paediatrics (2003) 23, 259–263

Pyrexia of unknown origin in children: a review of 102 patients from Turkey

ERGİN ÇİFTÇİ, ERDAL İNCE & ÜLKER DOĞRU

Department of Paediatric Infectious Diseases, University of Ankara Medical School, Ankara, Turkey

(Accepted July 2003)

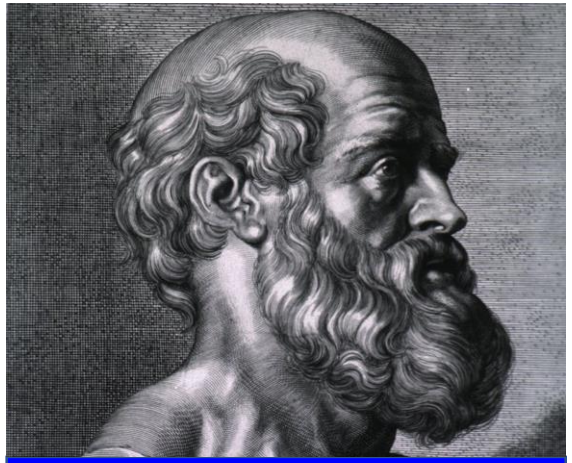
Summary Pyrexia of unknown origin (PUO) has not been appropriately investigated in Turkish children and therefore a study was undertaken to determine the causes of PUO and to evaluate which clinical procedures are useful in establishing a diagnosis. A total of 102 children fitting the classical PUO criteria seen in our clinic between 1995 and 2002 were investigated retrospectively. Infections, collagen vascular disorders, malignancy and miscellaneous conditions constituted 44.2%, 6.8%, 11.7% and 24.5% of cases, respectively, while 12.8% of the cases remained undiagnosed. Enteric fever, brucellosis and respiratory tract infections were the most commonly encountered infections, whereas familial Mediterranean fever was the commonest non-infectious disorder. Biopsy, aspiration, serology, bacteriology, radiology and observation of the clinical course were the most useful diagnostic procedures.

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Nedeni Nedir?

İlk kez 1961 yılında Petersdorf ve Beeson

1. En az üç hafta süren
2. Bir hafta süreyle hastanede yapılan incelemelere karşın nedeni belirlenemeyen
3. Belgelenmiş 38.3°C üzerinde ateş



Hipokrat

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Tanım

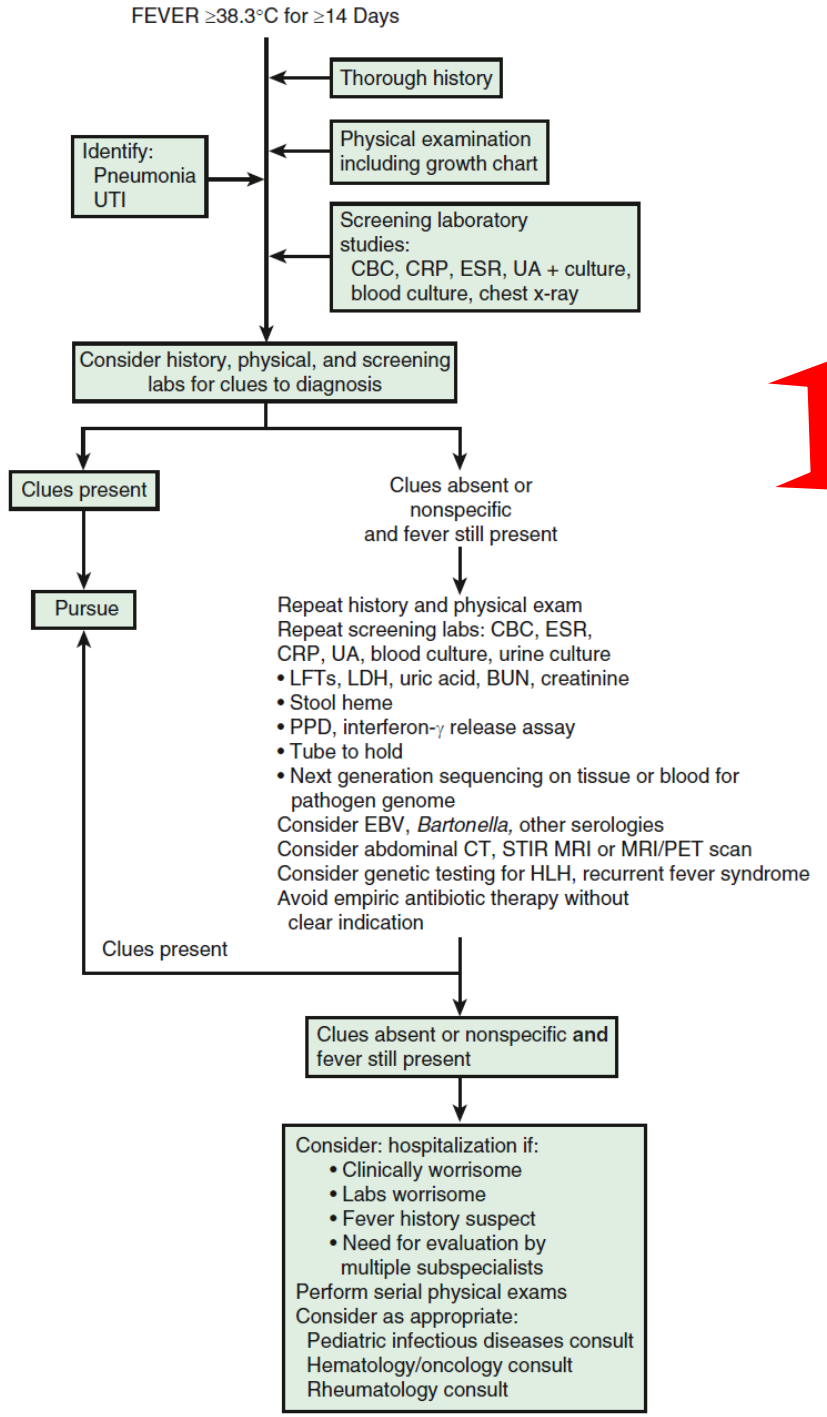
TABLE 56-1 Summary of Definitions and Major Features of the Four Subtypes of Fever of Unknown Origin (FUO)

	CLASSIC FUO	NOSOCOMIAL (HEALTH CARE–ASSOCIATED) FUO	NEUTROPENIC (IMMUNE-DEFICIENT) FUO	HIV-RELATED FUO
Definition	>38.3° C (100.9° F), >3 wk, >2 visits or 3 days in hospital	>38.3° C (100.9° F), >3 days, not present or incubating on admission	>38.3° C (100.9° F), >3 days, negative cultures after 48 hr	>38.3° C (100.9° F), >3 wk for outpatients, >3 days for inpatients, HIV infection confirmed

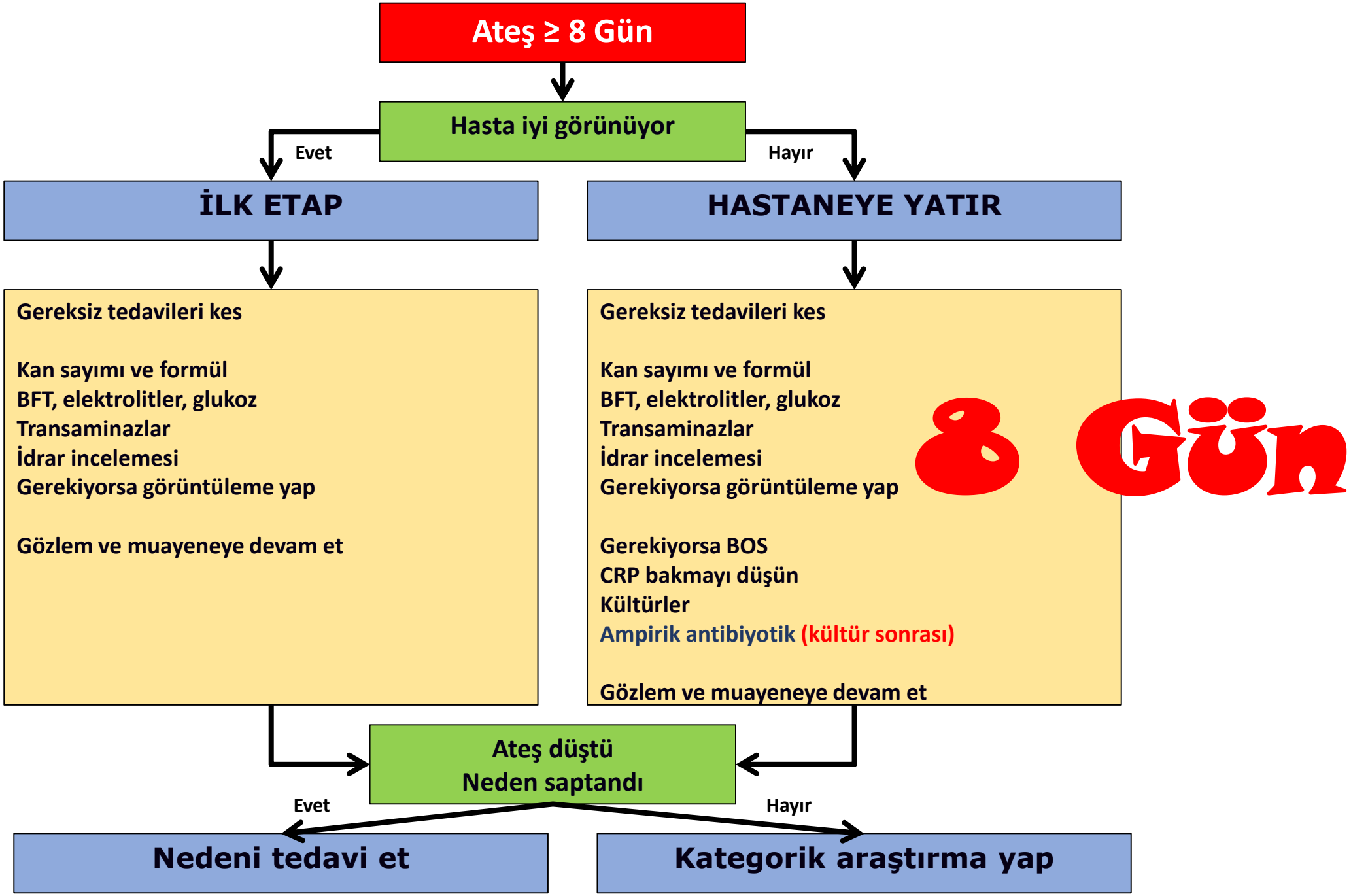
Table 177-4 Summary of Definitions and Major Features of the 4 Subtypes of Fever of Unknown Origin

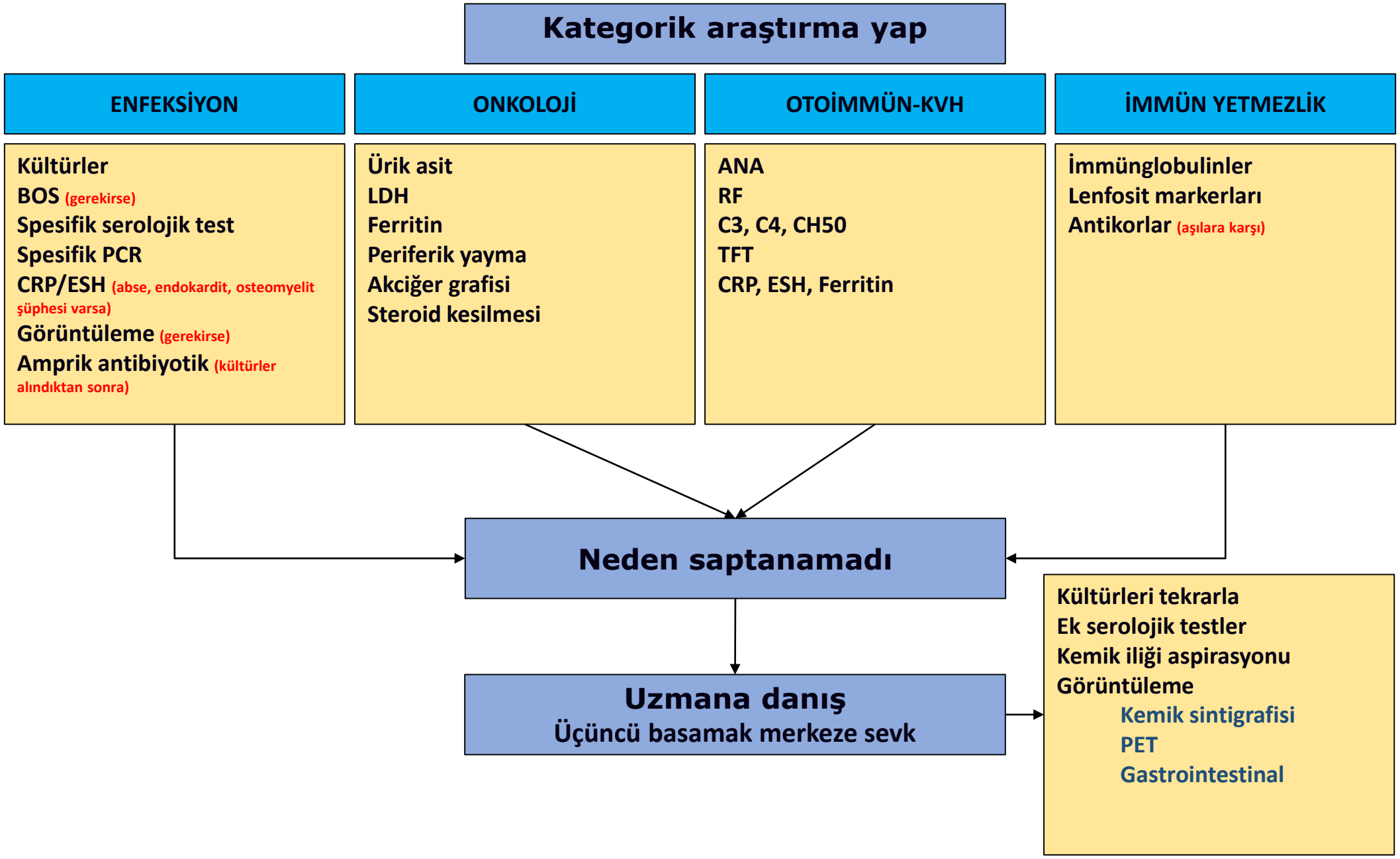
FEATURE	CLASSIC FUO	HEALTHCARE-ASSOCIATED FUO	IMMUNE-DEFICIENT FUO	HIV-RELATED FUO
Definition	>38°C (100.4°F), >3 wk, >2 visits or 1 wk in hospital	≥38°C (100.4°F), >1 wk, not present or incubating on admission	≥38°C (100.4°F), >1 wk, negative cultures after 48 hr	≥38°C (100.4°F), >3 wk for outpatients, >1 wk for inpatients, HIV infection confirmed

21 Gün


FEVER ≥38.3°C for ≥14 Days
Thorough history
Physical examination including growth chart
Identify: Pneumonia UTI
Screening laboratory studies: CBC, CRP, ESR, UA + culture, blood culture, chest x-ray
Consider history, physical, and screening labs for clues to diagnosis
Clues present
Clues absent or nonspecific and fever still present
Pursue
Repeat history and physical exam
Repeat screening labs: CBC, ESR, CRP, UA, blood culture, urine culture
• LFTs, LDH, uric acid, BUN, creatinine
• Stool heme
• PPD, interferon-γ release assay
• Tube to hold
• Next generation sequencing on tissue or blood for pathogen genome
Consider EBV, Bartonella, other serologies
Consider abdominal CT, STIR MRI or MRI/PET scan
Consider genetic testing for HLH, recurrent fever syndrome
Avoid empiric antibiotic therapy without clear indication
Clues present
Clues absent or nonspecific and fever still present
Consider: hospitalization if:
• Clinically worrisome
• Labs worrisome
• Fever history suspect
• Need for evaluation by multiple subspecialists
Perform serial physical exams
Consider as appropriate:
Pediatric infectious diseases consult
Hematology/oncology consult
Rheumatology consult

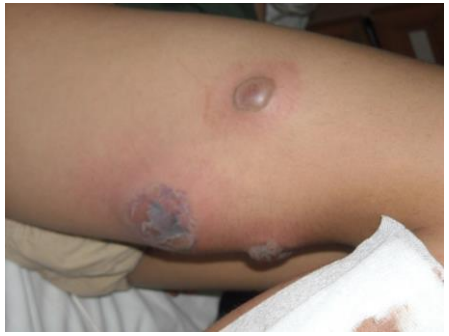
14 Gün

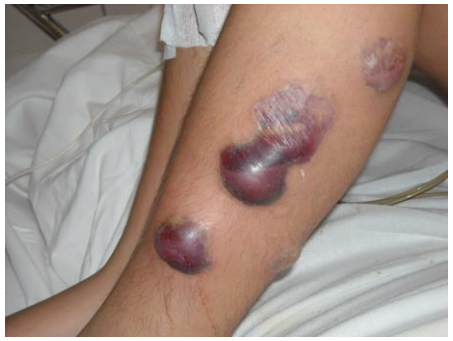

Ateş ≥ 8 Gün
Hasta iyi görünüyor
Evet
Hayır
İLK ETAP
HASTANEYE YATIR
Gereksiz tedavileri kes
Kan sayımı ve formül
BFT, elektrolitler, glukoz
Transaminazlar
İdrar incelemesi
Gerekiyorsa görüntüleme yap
Gözlem ve muayeneye devam et
Gereksiz tedavileri kes
Kan sayımı ve formül
BFT, elektrolitler, glukoz
Transaminazlar
İdrar incelemesi
Gerekiyorsa görüntüleme yap
Gerekiyorsa BOS
CRP bakmayı düşün
Kültürler
Ampirik antibiyotik (kültür sonrası)
Gözlem ve muayeneye devam et
8 Gün
Ateş düştü
Neden saptandı
Evet
Hayır
Nedeni tedavi et
Kategorik araştırma yap

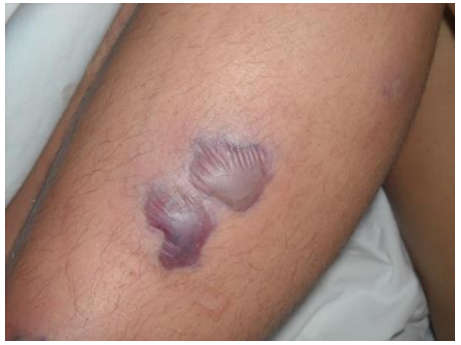

Kategorik araştırma yap
ENFEKSİYON
ONKOLOJİ
OTOİMMÜN-KVH
İMMÜN YETMEZLİK
Kültürler
BOS (gerekirse)
Spesifik serolojik test
Spesifik PCR
CRP/ESH (abse, endokardit, osteomyelit şüphesi varsa)
Görüntüleme (gerekirse)
Amprik antibiyotik (kültürler alındıktan sonra)
Ürik asit
LDH
Ferritin
Periferik yayma
Akciğer grafisi
Steroid kesilmesi
ANA
RF
C3, C4, CH50
TFT
CRP, ESH, Ferritin
İmmünglobulinler
Lenfosit markerları
Antikorlar (aşılara karşı)
Neden saptanamadı
Uzmana danış
Üçüncü basamak merkeze sevk
Kültürleri tekrarla
Ek serolojik testler
Kemik iliği aspirasyonu
Görüntüleme
Kemik sintigrafisi
PET
Gastrointestinal

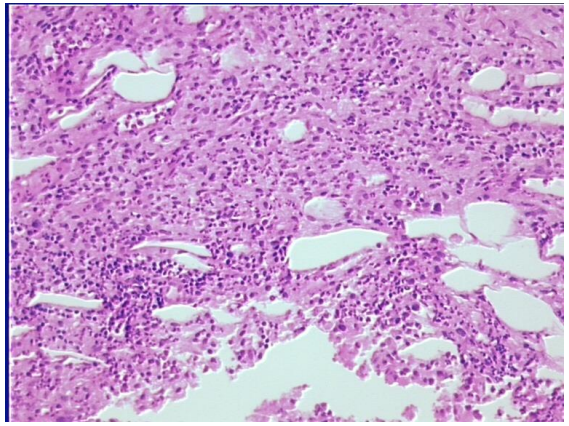
NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

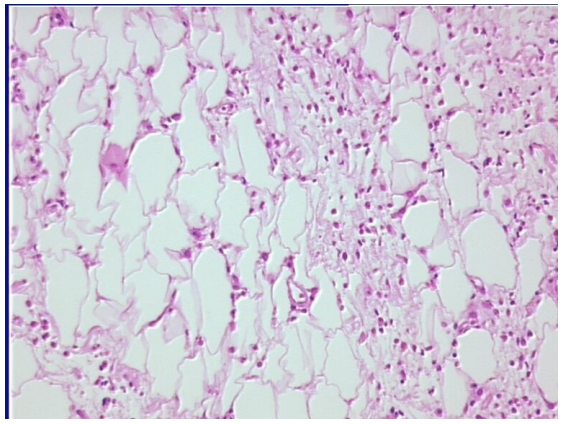
Biyopsi



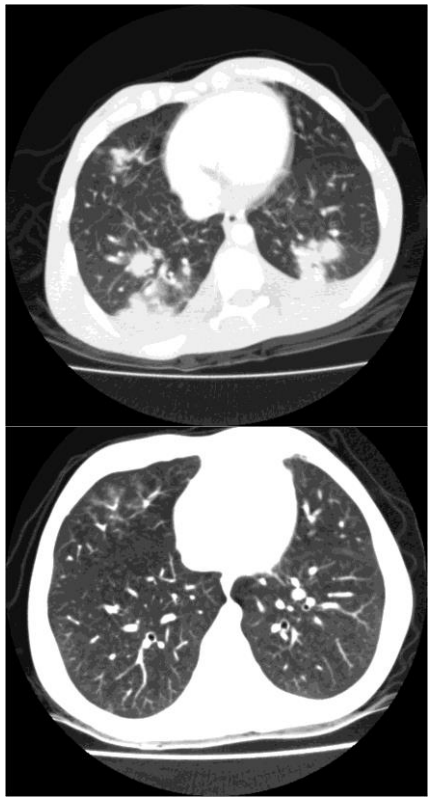








Cilt Biyopsisi



Sweet Sendromu

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Biyopsi

Olgu: Dokuz yaşında erkek hasta, iki hafta önce başlayan boyun sağ tarafında şişlik, boğaz ağrısı ve ateş nedeniyle başvurdu. Anamnezde çiğ süt veya peynir yeme, tüberküloz teması, kene ısırığı, kedi tırmalama ve av hayvanı tüketim öyküsü olmadığı öğrenildi. Sadece tüm ailenin kuyu suyu içme öyküsü olduğu, benzer şikâyetlerin başka kimsede olmadığı saptandı. Fizik muayenesinde sağ servikal bölgede 3x2 cm ağrılı, mobil, sınırları net seçilemeyen lenfadenopati ve orofarinkste belirgin hiperemi haricinde patolojik bulguya rastlanmadı. Kan tetkiklerinde Lökosit: 3.830/mm3, Hgb: 11 g/dL, Trombosit: 342.000/mm3, nötrofil sayısı: 2090/mm3, lenfosit sayısı: 1240/mm3 sedimentasyon: 66 mm/saat CRP: 58.7 mg/L bulundu. Ampisilin-sulbaktam 200 mg/kg/g ve gentamisin 5 mg/kg/g olarak başlandı. Enfeksiyöz etkenlere yönelik yapılan tetkiklerinde etyoloji saptanamadı. Boyun ultrasonografisinde; sağda jugulodigastrik bölgede 12x8 mm boyutunda belirgin kanlanma gösteren reaktif lenf nodları saptandı. Abdominal ultrasonografisinde ise hepatosplenomegali haricinde bulgu görülmedi. Antibiyotik tedavisinin ikinci gününden itibaren ateşi olmayan hastanın tedavinin 12. gününde ateş, yanaklarda kızarıklık, kusma ve boğaz ağrısı başladı. Fizik muayenesinde sağda membranöz tonsilit ve yumuşak damakta aftöz lezyonu görüldü. Sebat eden ateş, hepatosplenomegali ve lökopeni sebebiyle yapılan kemik iliği aspirasyonunda patolojik bulguya rastlanmadı. Lenf nodu ince iğne aspirasyon biopsisi saptanan nekroz içinde karyorektik debri, histiyositler, lenfositler ve seyrek olarak nötrofil gözlenmesi KFH ile uyumlu bulundu. Antibiotik tedavisi kesilerek metilprednizolon 2 mg/kg/gün başlandı. Steroid tedavisi sonrası ateşi tekrar etmeyen, boğaz ağrısı gerileyen hastanın tonsil ve ağız değişiklikleri düzeldi, lenfadenopati boyutları küçülüp döküntü kayboldu.

Servikal Lenf Nodu Biyopsisi

Kikuchi-Fujimoto Hastalığı

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Biyopsi

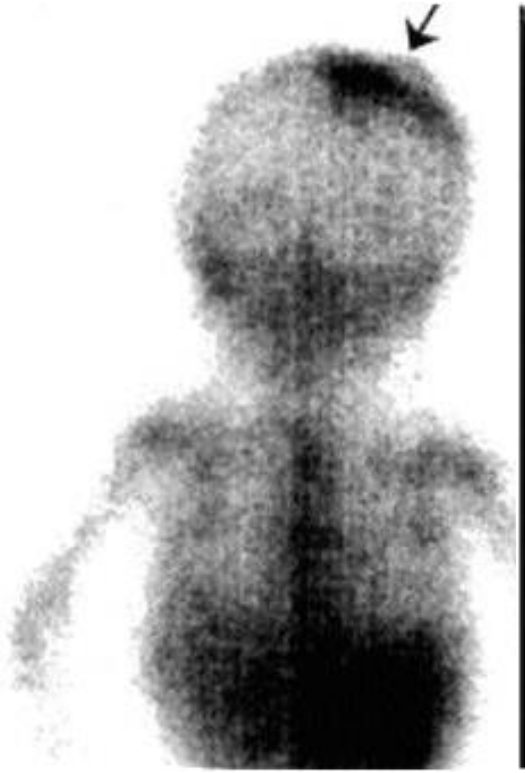
Bulgular: Yedi hastanın 4'ü erkek olup, yaş ortalaması 148 ay (86-203 ay) idi. Başvuru şikâyetleri en sık boyunda şişlik, halsizlik iken bir hastamız da karın ağrısı ve kilo kaybı ile başvurdu. Beş hastada glandüler (%71,4), birinde (%14,7) abdominal, birinde de orofaringeal (%14,7) formda tularemi saptandı. Beş hastamızda şehir şebeke suyu, iki hastamızda da kuyu suyu içme öyküsü vardı. Hastaların yakınmalarının başlangıcından hastanemize başvurusu arasında geçen ortalama süre 22 gün (15-30) idi. Tularemi tanısı, Hıfzıssıhha Enstitüsü laboratuvarında serum mikroaglütinasyon testi (≥ 1/160 titre) ve tularemi polimeraz zincir reaksiyonu (PCR) testi ile konuldu. Altı hastamıza ilk tercih ikili kombine tedavi (gentamisin-siprofloksasin, streptomisin-levofloksasin, doksisiklin-gentamisin) verilirken bir hastaya tekli doksisiklin tedavisi başlandı. Toplam tedavi süresi 14 gün olarak belirlendi (Tablo 1). Apse gelişimi gözlenen üç hastanın apse drenajı örneği ve/veya lenf nodundan yapılan doku biyopsi sonucu "granülomatoz nekrotizan lenfadenit" olarak yorumlandı.

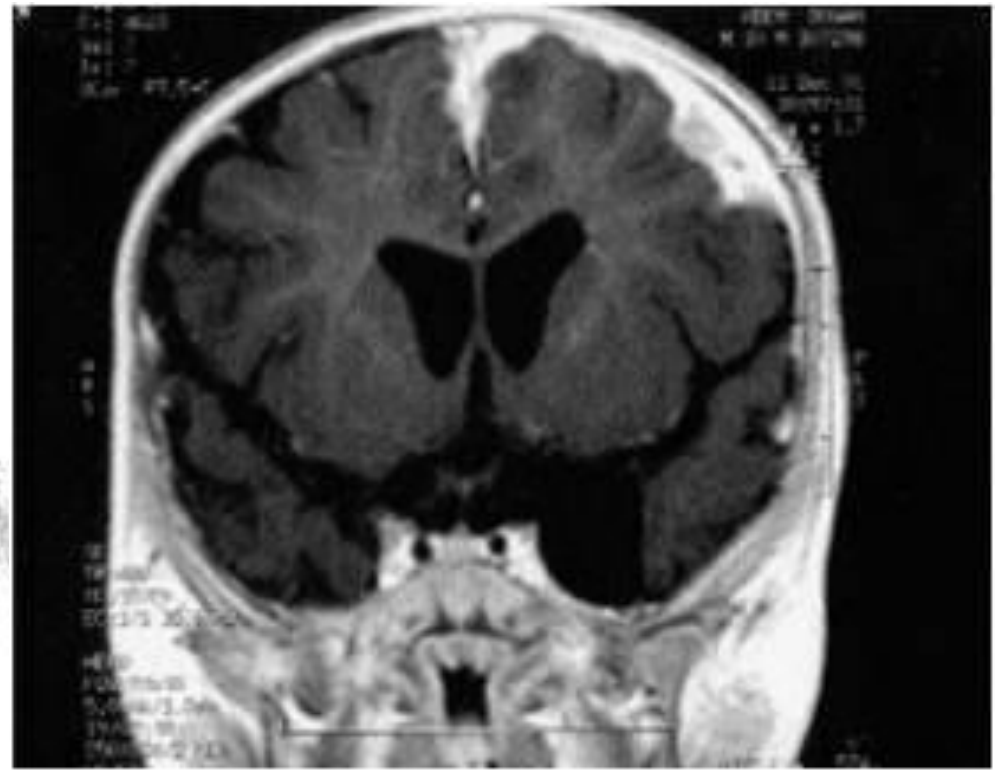
Abdominal Lenf Nodu Biyopsisi

Tularemi

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Görüntüleme





Pürülan menenjit
Haemophlus influenzae tip b

Epidural abse

Türk Pediatri Arşivi 2002 37: 213-218

Çocuklarda invaziv Haemophilus influenzae tip b enfeksiyonları

Invasive Haemophilus influenzae type b infections in children

Ergin Çiftçi(*), Pembe Derin Oygar(**), Çiğdem Genç(**), Erdal İnce(***), Ercan Tutar(***)
Haluk Güriz(*), Ahmet Derya Aysev (****), Ülker Doğru(****)

Özet

Haemophilus influenzae tip b suşları menenjit, pnömoni, ampiyem, epiglottit, sellülit, septik artrit, perikardit ve bakteriyemi gibi ciddi enfeksiyonlara yol açmaktadır. Burada invaziv H. influenzae tip b enfeksiyonu olan beş çocuk hasta sunulmaktadır. Hastaların hepsi de 2 yaşın altındaydı. Hiçbir hastaya H. influenzae tip b aşısı yapılmamıştı. Uygun antibiyotik ve cerrahi girişim ile bütün hastalar sekelsiz olarak iyileşmiştir. Ülkemizde H. influenzae tip b enfeksiyonlarının önlenmesi için H. influenzae tip b aşılamasının rutin aşı takvimine alınması gereklidir.

Anahtar kelimeler: Haemophilus influenzae tip b, menenjit, pnömoni, ampiyem, bakteriyemi, preseptal sellülit

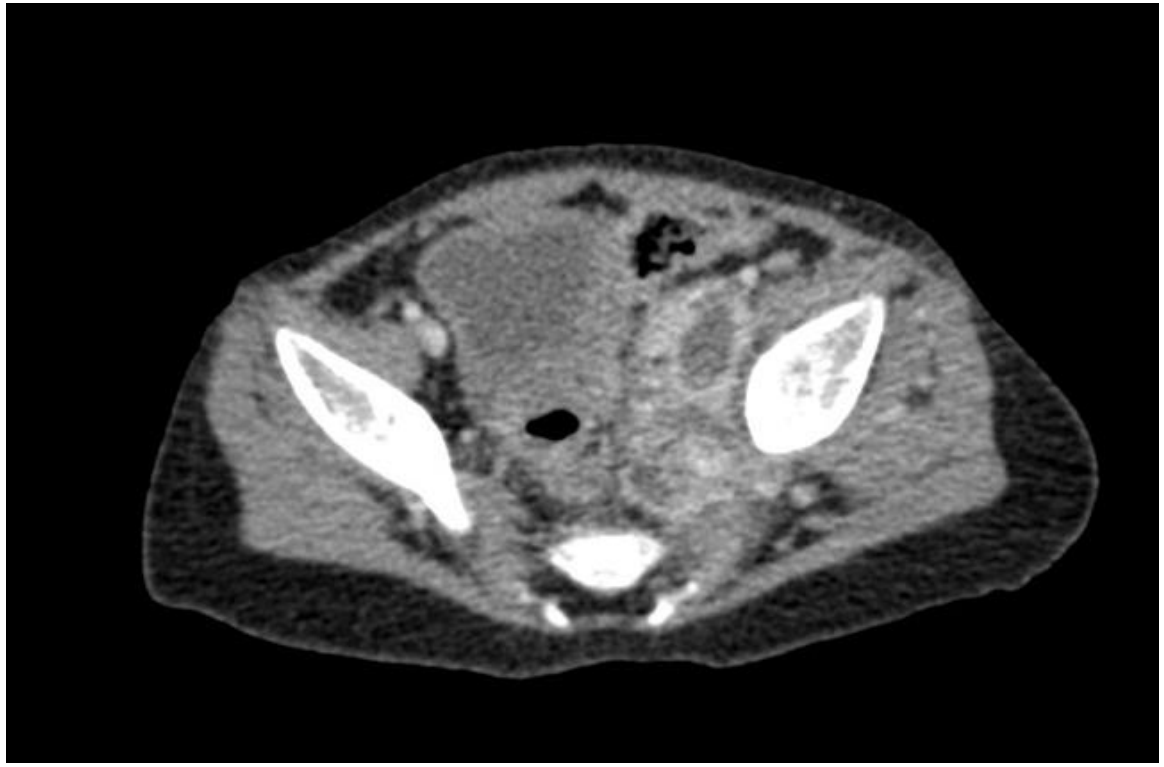
Summary

Haemophilus influenzae type b strains cause severe infections such as meningitis, pneumonia, empyema, epiglottitis, cellulitis, septic arthritis, pericarditis and bacteremia. In this report, five children with invasive H. influenzae type b infection are presented. All patients were younger than two years. None of the patients was immunized with H. influenzae type b vaccine. All of the patients treated with appropriate antibiotics and surgical interventions recovered without sequel. H. influenzae type b vaccination must be added to routine vaccination schedule in order to prevent H. influenzae type b infections in our country.

Key words: Haemophilus influenzae type b, meningitis, pneumonia, empyema, bacteremia, preseptal cellulitis

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Görüntüleme



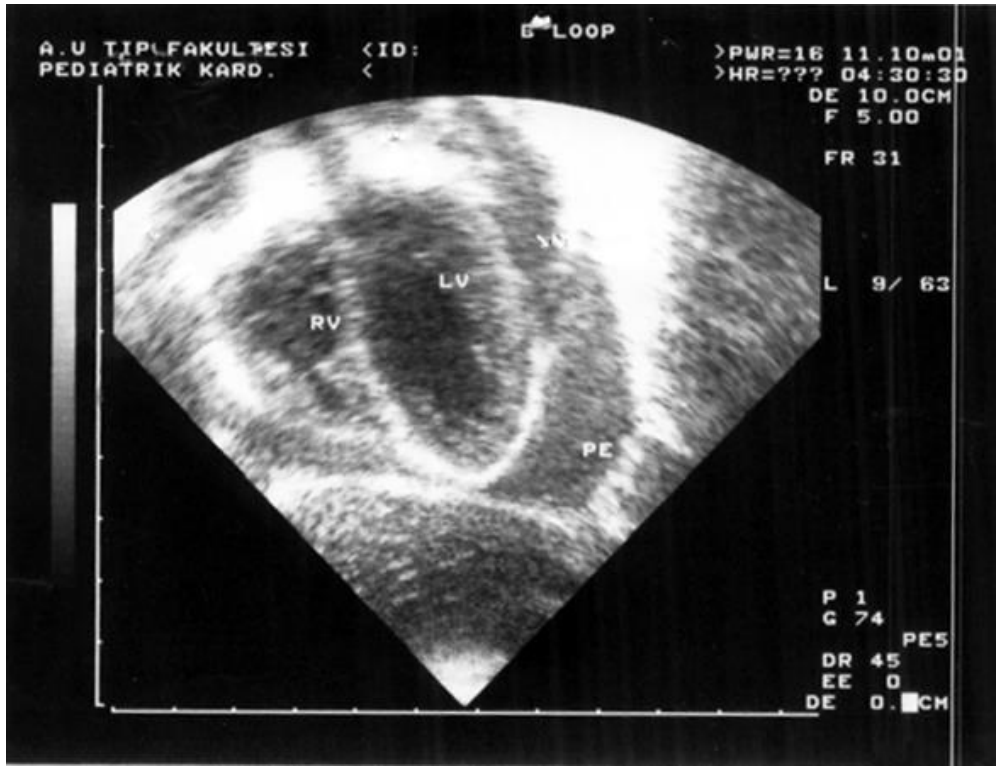
FMF
Artrit

Osteomyelit-İliopsoas Absesi
Staphylococcus aureus

Ankara Üniversitesi Tıp Fakültesi
Çocuk Enfeksiyon Hastalıkları Arşivi

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Görüntüleme

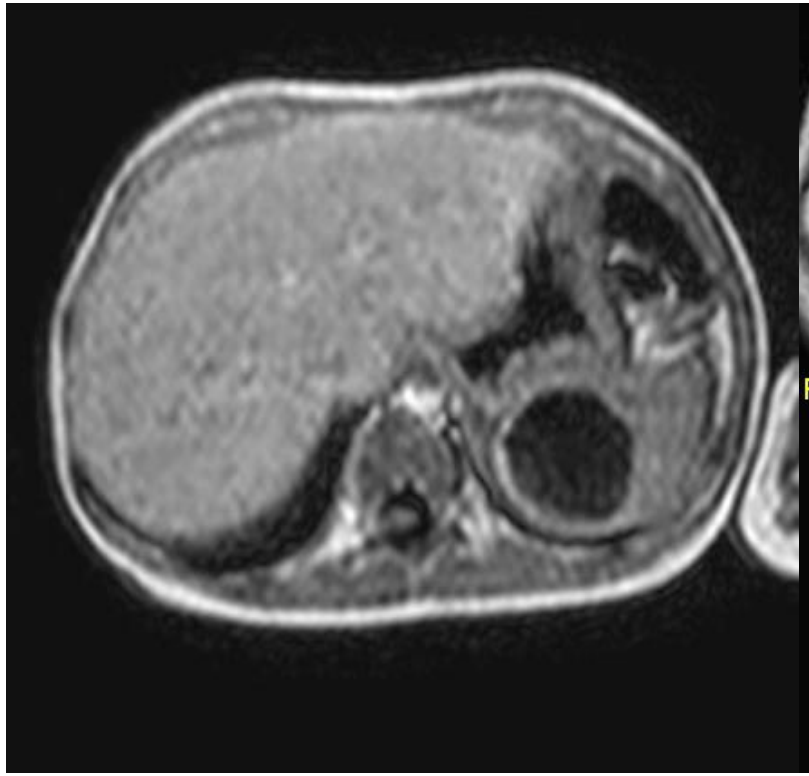


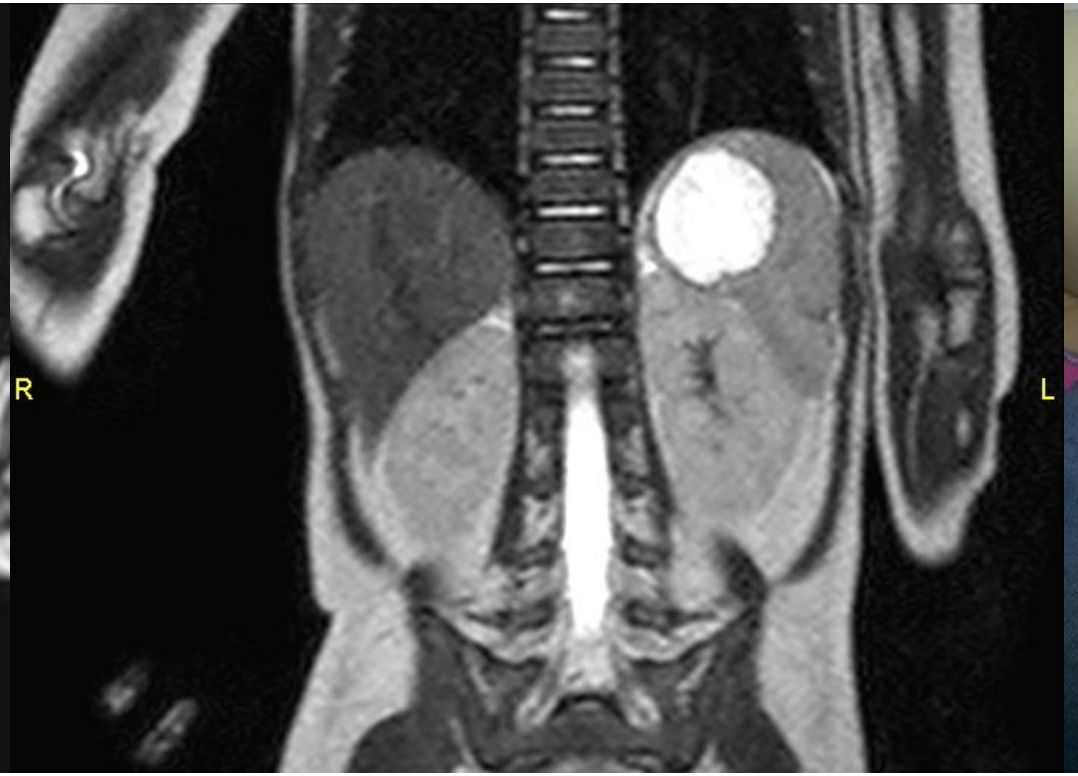
Pnömoni
***Haemophlus influenzae* tip b**

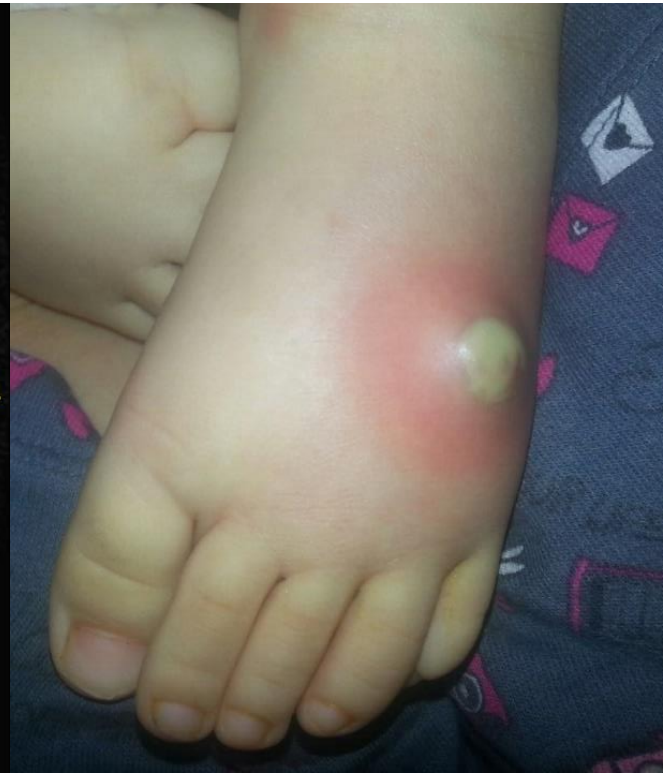
Pürülan Perikardit
***Haemophlus influenzae* tip b**

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Görüntüleme







Dalak absesi
Kültürde üreme yok

Pannikülit

Ankara Üniversitesi Tıp Fakültesi
Çocuk Enfeksiyon Hastalıkları Arşivi

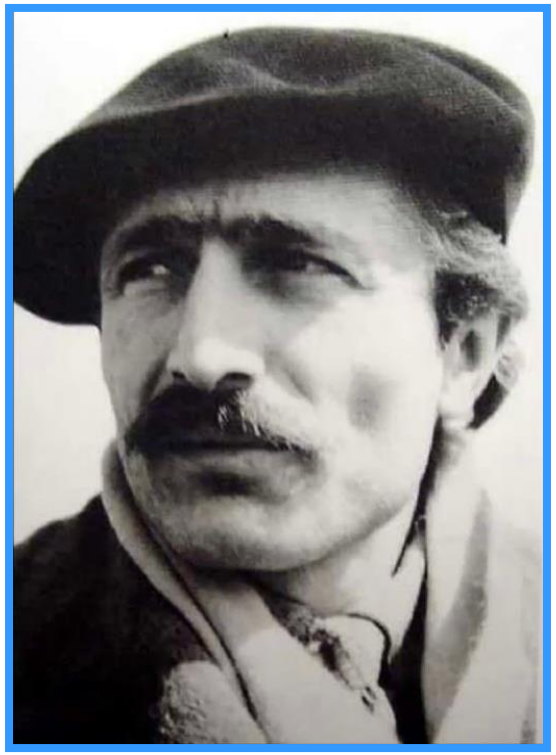
NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Tanıya Giden Yol

- Hastanın başvuru yakınmaları ve bulguları
- Eşlik eden semptomlar
- Coğrafi bölge
- Çevresel maruziyet
- Deneyimli bir hekim değerlendirmesi
- Mevcut test olanaklarının kullanılması

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Tanıya Giden Yol

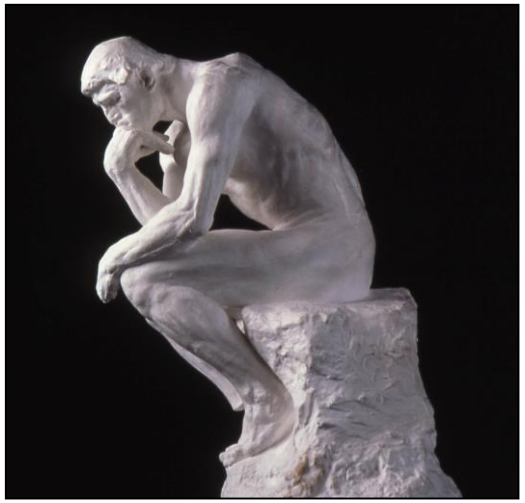


Damla kendini tamamlayınca damlar.

ÖZDEMİR ASAF

NEDENİ BİLİNMEYEN UZAMIŞ ATEŞ

Tanıya Giden Yol



Common Causes of Pediatric FUO

Infectious

Bacterial	*Viral*	*Other*
Abscess	Adenovirus	Blastomycosis
Bartonella	Arbovirus	Cryptosporidium
Brucellosis	Cytomegalovirus	Ehrlichiosis
Leptospirosis	Enterovirus	Histoplasmosis
Mastoiditis	Epstein-Barr Virus	Leishmaniasis
Mycoplasma	Hepatitis Viruses	Lymphogranuloma Venereum
Osteomyelitis	Herpes Simplex Virus	Malaria
Pyelonephritis	Human Immunodefiency Virus	Psittacosis
Rat Bite Fever	Picornavirus	Q Fever
Salmonellosis		Rocky Mountain Spotted Fever
Sinusitis		Toxoplasmosis
Tuberculosis		Visceral larva migrans
Tularemia		
Non-Tuberulous Mycobacteria		

Non-Infectious

Oncologic	*Autoimmune*	*Other*
Leukemia	Behcet Disease	Diabetes Insipidus
Lymphoma	Inflammatory Bowel Disease	Drug Fever
Langerhans Cell Histiocytosis	Hyperthyroidism	Factitious Fever
Neuroblastoma	Granulomatosis (with polyangitis)	Familial Dysautonomia
Hemophagocytic Lymphohistiocytosis	Juvenile Idiopathic Arthritis	Periodic Fever Syndromes
	Kawasaki Disease	Pancreatitis
	Polyarteritis Nodosa	Serum Sickness
	Sarcoidosis	Cyclic neutropenia
	Systemic Lupus Erythematous	Kikuchi-Fujimoto Disease
	Antiphospholipid Antibody Syndrome	
	Subacute thyroiditis	

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