

Hemorajik strokta Acil Tıp, Nöroloji ve Nöroşirurji triadı

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Sunum plani

AHA/ASA Guideline

Guidelines for the Management of Spontaneous Intracerebral Hemorrhage A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.

Endorsed by the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, and the Neurocritical Care Society

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Purpose—The aim of this guideline is to present current and comprehensive recommendations for the diagnosis and treatment of spontaneous intracerebral hemorrhage.

Methods—A formal literature search of PubMed was performed through the end of August 2015. The writing committee met by teleconference to discuss narrative text and recommendations. Recommendations follow the American Heart Association/American Stroke Association methods of classifying the level of certainty of the treatment effect and the class of evidence. Pre-release review of the draft guideline was performed by 6 expert peer reviewers and by the members of the Stroke Council Scientific Oversight Committee and Stroke Council Leadership Committee.

Results—Evidence-based guidelines are presented for the care of patients with acute intracerebral hemorrhage. Topics focused on diagnosis, management of coagulopathy and blood pressure, prevention and control of secondary brain injury and intracranial pressure, the role of surgery, outcome prediction, rehabilitation, secondary prevention, and future considerations. Results of new phase 3 trials were incorporated.

Conclusions—Intracerebral hemorrhage remains a serious condition for which early aggressive care is warranted. These guidelines provide a framework for goal-directed treatment of the patient with intracerebral hemorrhage. (Stroke. 2015;46:2032-2060. DOI: 10.1161/STR.0000000000000609.)

Key Words: AHA Scientific Statements ■ blood pressure ■ coagulopathy ■ diagnosis ■ intracerebral hemorrhage ■ intraventricular hemorrhage ■ surgery ■ treatment

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Expert peer review of AHA Scientific Statements is conducted by the AHA Office of Science Operations. For more on AHA statements and guidelines development, visit <http://my.americanheart.org/statements> and select the "Policies and Development" link.

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2032

Giriş

- Stroklerin % 8-18'i hemorajik
- İntraserebral kanama / hemorajik strok
- Bulantı, kusma, baş ağrısı, nöbet, şuur değişikliği, yüksek tansiyon

Patofizyoloji

- Arterioller veya küçük arterler
- Kronik hipertansiyon*
- Damar hasarı
- Doğrudan beyin parankimi içine kanama
- Kan birikimi birkaç dakika veya birkaç saat sürer
- Etraftaki ödemle birlikte kitle etkisi
- KİBA

Patofizyoloji

- SAK:
 - KİBA
 - Serebral oto-regülasyonda bozulma
 - Akut vasokonstriksiyon
 - Mikrovasküler platelet agregasyonu
 - Mikrovasküler perfüzyonda bozukluk
 - Serebral iskemi

Etiyoloji

- Risk faktörleri
 - İleri yaş
 - HT (>60)
 - Önceden geçirilmiş strok
 - Alkol kullanımı
 - Yasa dışı ilaç kullanımı

Etiyoloji

- Nedenler
 - HT* (2/3 vaka; bazal ganglium, talamus, serebellum, pons)
 - Serebral amiloidoz
 - Koagülopatiler (karaciğer hastalıkları, faktör eksiklikleri)
 - Antikoagülan tedavisi (warfarin)
 - Trombolitik tedavi (iyatrojenik hemorajik transformasyon)
 - AVM (SAK)
 - Vaskulit
 - İntrakranial neoplazm

Prognoz

- Ciddiyet skoru
- GKS
- Hematomun yeri
- Hematom hacminin genişlemesi 😞
- Ventriküler kanama 😞
- Antikoagülan ilişkili kanama 😞
- Kan şekeri
- Anevrizmal olmayan perimesensefalik kanama 😊

Prognoz

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Hemphill et al Management of Spontaneous ICH 2035

Table 3. Class I Recommendations

Section	Class I Recommendations
Emergency Diagnosis and Assessment	A baseline severity score should be performed as part of the initial evaluation of patients with ICH (Class I; Level of Evidence B). (New recommendation)

Prognoz

ivenli değil | www.neurosurgic.com/index.php?option=com_content&view=article&id=710&Itemid=648

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we do not have the possibility to
add more conferences
for the moment

WFNS SAH gradi

Scale for grading patients with

Grade	GCS
I	15
II	14-13
III	14-13
IV	12-7
V	6-3

Reference

Teasdale GM, Drake CG, Hunt W,
hemorrhage scale: report of a con
Psychiatry. 1988 Nov;51(11):1457

World Federation of Neurological Surgeons Grading System for Subarachnoid Hemorrhage - (WFNS) scale

Overview :

The clinical grading system proposed by the World Federation of Neurologic Surgeons is intended to be a simple, reliable and clinically valid way to grade a patient with subarachnoid hemorrhage. This system offers less interobserver variability than some of the earlier classification systems.

Glasgow Coma Score	Motor Deficit	Grade
15	absent	1
13 - 14	absent	2
13 - 14	present	3
7 - 12	present or absent	4
3 - 6	present or absent	5

*Where a motor deficit refers to a major focal deficit.

Interpretation:

- Maximum score of 15 has the best prognosis
- Minimum score of 3 has the worst prognosis
- Scores of 8 or above have a good chance for recovery
- Scores of 3-5 are potentially fatal, especially if accompanied by fixed pupils or absent oculovestibular responses
- Young children may be nonverbal, requiring a modification of the coma scale for evaluation

- Tanı ve prognoz
- Strok ünitesi yada nöro/NRŞ YBÜ hızlı transfer
- Zamana karşı tedaviye (kan basıncı kontrolü, koagülopati tedavisi) acil serviste başla*

Klinik değerlendirme

- Hikaye: başlama zamanı, semptomlar, risk faktörleri, olası nedenler
- Şikayet:
 - Güçsüzlük, parezi
 - Fasial asimetri
 - Görme, görme alanı bozuklukları
 - Disartri, afazi
 - Vertigo, ataksi
 - Ani baş ağrısı
 - Ense sertliği
 - Fotofobi ve göz hareketleri ile ağrı
 - Bulantı ve kusma
 - Senkop

Klinik değerlendirme

- Fizik muayene
 - HT ☹
 - Ateş ☹
 - Şuur değişiklikleri
 - Hemi/kuadri parezi, hemihipoestezi
 - Fasiyal asimetri
 - Bakış, görme alanı bozuklukları, miyosiz
 - Afazi, disfazi
 - Taraf ihmali
 - Ataksi
 - Ense sertliği

Ayırıcı tanı

- **Akut Hipoglisemi**
- Beyin Tümörleri
- Menenjit, ensefalit
- Baş ağrısı, migren
- Hiper/ hiponatremi
- Hiperozmolar Hiperglisemik Nonketotik Koma
- Hipertansif Acil Durumlar
- Labirentit Ossificans
- İskemik strok
- Subaraknoid hemoraji
- Subdural Hematom
- Geçici iskemik atak

Tanı

- Laboratuvar
 - Hemogram
 - Biyokimya (metabolik panel)
 - Koagülasyon paneli*
- Görüntüleme

Hemphill et al Management of Spontaneous ICH 2035

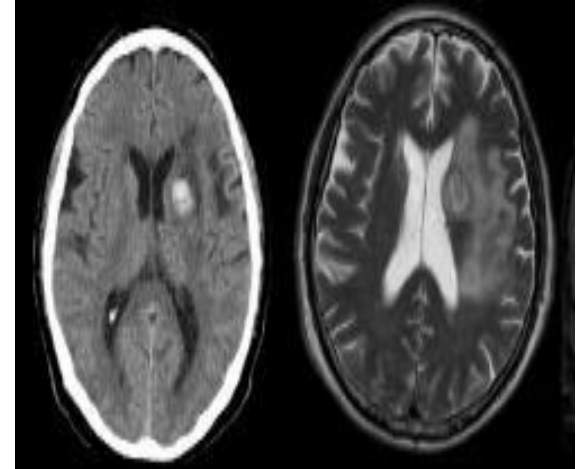
Table 3. Class I Recommendations

Section	Class I Recommendations
Emergency Diagnosis and Assessment	A baseline severity score should be performed as part of the initial evaluation of patients with ICH (<i>Class I; Level of Evidence B</i>). (New recommendation) Rapid neuroimaging with CT or MRI is recommended to distinguish ischemic stroke from ICH (<i>Class I; Level of Evidence A</i>). (Unchanged from the previous guideline)

Tanı

Görüntüleme: NKBT veya MR

- Ayırıcı tanı
- Komplikasyonların tespiti
 - Ventriküler hemoraji
 - Beyin ödemi
 - Hidrosefali
- CT anjiyografi veya KBT: hematoma ekspansiyonu ?
(Class IIb; Level of Evidence B)
- CT anjiyografi, venografi, KBT, KMR, MR anjiyografi, venografi: yapısal lezyon ?
(Class IIa; Level of Evidence B)
- DSA (digital subtraction angiography) / MRA: SAK



<http://emedicine.medscape.com/article/1916662>

Tedavi

- Tedavinin başlıca hedefleri:
 - Kanamanın genişlemesinin engellenmesi, yönetilmesi
 - KİBA engellenmesi, yönetilmesi
 - Nörolojik ve tıbbi komplikasyonların önlenmesini

- A
- B
- C
- D
- İKYD
- KŞ kontrolü

Tedavi

Hemphill et al Management of Spontaneous ICH 2035

Table 3. Class I Recommendations

Section	Class I Recommendations
Emergency Diagnosis and Assessment	A baseline severity score should be performed as part of the initial evaluation of patients with ICH (Class I; Level of Evidence B). (New recommendation) Rapid neuroimaging with CT or MRI is recommended to distinguish ischemic stroke from ICH (Class I; Level of Evidence A). (Unchanged from the previous guideline)
Hemostasis and Coagulopathy, Antiplatelet Agents, and DVT Prophylaxis	Patients with a severe coagulation factor deficiency or severe thrombocytopenia should receive appropriate factor replacement therapy or platelets, respectively (Class I; Level of Evidence C). (Unchanged from the previous guideline) Patients with ICH whose INR is elevated because of VKA should have their VKA withheld, receive therapy to replace vitamin K–dependent factors and correct the INR, and receive intravenous vitamin K (Class I; Level of Evidence C). (Unchanged from the previous guideline) Patients with ICH should have intermittent pneumatic compression for prevention of venous thromboembolism beginning the day of hospital admission (Class I; Level of Evidence A). (Revised from the previous guideline)
Blood Pressure	For ICH patients presenting with SBP between 150 and 220 mm Hg and without contraindication to acute BP treatment, acute lowering of SBP to 140 mm Hg is safe (Class I; Level of Evidence A) and can be effective for improving functional outcome (Class IIa; Level of Evidence B). (Revised from the previous guideline)
General Monitoring and Nursing Care	Initial monitoring and management of ICH patients should take place in an intensive care unit or dedicated stroke unit with physician and nursing neuroscience acute care expertise (Class I; Level of Evidence B). (Revised from the previous guideline)
Glucose Management	Glucose should be monitored. Both hyperglycemia and hypoglycemia should be avoided (Class I; Level of Evidence C). (Revised from the previous guideline)
Seizures and Antiseizure Drugs	Clinical seizures should be treated with antiseizure drugs (Class I; Level of Evidence A). (Unchanged from the previous guideline) Patients with a change in mental status who are found to have electrographic seizures on EEG should be treated with antiseizure drugs (Class I; Level of Evidence C). (Unchanged from the previous guideline)
Management of Medical Complications	A formal screening procedure for dysphagia should be performed in all patients before the initiation of oral intake to reduce the risk of pneumonia (Class I; Level of Evidence B). (New recommendation)
Surgical Treatment of ICH	Patients with cerebellar hemorrhage who are deteriorating neurologically or who have brainstem compression and/or hydrocephalus from ventricular obstruction should undergo surgical removal of the hemorrhage as soon as possible (Class I; Level of Evidence B). (Unchanged from the previous guideline)
Prevention of Recurrent ICH	BP should be controlled in all ICH patients (Class I; Level of Evidence A). (Revised from the previous guideline) Measures to control BP should begin immediately after ICH onset (Class I; Level of Evidence A). (New recommendation)
Rehabilitation and Recovery	Given the potentially serious nature and complex pattern of evolving disability and the increasing evidence for efficacy, it is recommended that all patients with ICH have access to multidisciplinary rehabilitation (Class I; Level of Evidence A). (Revised from the previous guideline)

BP indicates blood pressure; CT, computed tomography; DVT, deep vein thrombosis; EEG, electroencephalography; ICH, intracerebral hemorrhage; INR, international normalized ratio; MRI, magnetic resonance imaging; SBP, systolic blood pressure; and VKA, vitamin K antagonist.

Tedavi

- Kan basıncı kontrolü
 - Başlangıçta yoğun şekilde TA kontrolü hematoma büyümesini* engeller (INTERACT-Intensive Blood Pressure Reduction in Acute Cerebral Hemorrhage Trial)
 - Labetolol (5-20 mg IV, 2mg/dk)
 - Esmolol (0.25-0.5 mg/kg IV, 0.05-0.1 mg/kg/min)
 - Enalapril
 - Nikardipin
 - Hidralazin

Tedavi

- Antikoagölan kullanımına baęlı hemorajik strok: %12- 20
 - Vit K antagonistleri (warfarin)
 - INR hızlıca düzeltilmeli
 - TDP (15-20 mL/kg) ve K vit (5 -10 mg yavaş IV inf)
 - Protrombin Kompleks Konsantresi (PCC) (20–40 mL)

Tedavi

- Antikoagülan kullanımına bağlı hemorajik strok:
 - Yeni oral antikoagülanlar (dabigatran, rivaroxaban, apixaban)
 - FEIBA (factor VIII inhibitor bypassing activity), PCC, rFVIIa
 - Aktif kömür
 - Hemodializ: dabigatran

Tedavi

- Antikoagölan kullanımına baėlı hemorajik strok:
 - Heparin, DMAH*
 - Protamin sülfat: her 100 Ü heparin için 1mg (max 50mg)

Tedavi

- Ağır faktör eksikliği veya trombositopeniye bağlı hemorajik strok:
 - Uygun faktör veya trombosit transfüzyonu
- Antitrombotik kullanımına bağlı hemorajik strok:
 - Trombosit transfüzyon yararı?
 - Ciddi trombositopenide verilebilir

Tedavi

- Tromboembolik risk yüksek
- Aralıklı pnömotik kompresyon ☹️
- DMAH
- IVC filtresi

Tedavi

- Nöbet tedavisi
 - % 4-28, nonkonvülsif
 - Klinik, EEG, bilinç düzeyinde değişiklik
 - Sürekli EEG monitorizasyonu*
 - Diazepam, lorazepam, fenitoin

Tedavi

- Kan şekeri
 - Hipo ve hiperglisemiden kaçın (>60 - <180)
- Vücut ısısı
 - Ateş varsa düşürülmeli
 - Enfeksiyon odakları

- Komplikasyon takibi
 - Aspirasyon*
 - Pnömoni, üriner enfeksiyon
 - Solunum yetmezliği
 - Sepsis
 - Akciğer ödemi
 - ARDS
 - AKS*
 - ABY, elektrolit bozuklukları
 - GİS kanamaları*

Tedavi

- Kafa içi basınç kontrolü
 - Başın elevasyonu
 - Yeterli analjezi (morfin, fentanil)
 - Yeterli sedasyon (propofol, etomidat, midazolam)

Tedavi

- Ventriküler drenaj
 - Bilinç düzeyi gerilemiş hidrocefali
 - $GKS \leq 8$
 - Transtentoriyal herniasyon
 - Ciddi ventrikül içi kanama
 - Hidrocefali

Tedavi

- Supratentoriyal kanama için cerrahi tedavi
 - 8 saat içinde cerrahi müdahale
 - Hematom hacmi 20-50 mL
 - GKS: 9-12
 - Yaş 50-69 *
 - Ventriküle açılmamış lobar hematom **
 - Komada, orta hat kayması veya KİBA olan geniş hematom:
Dekompresif kraniektomi

*Gregson et al. Stroke 2012

**Steiner et al. J Stroke Cerebrovasc Dis. 2011.

Tedavi

- Serebellar kanama için cerrahi tedavi
 - Bilinç düzeyinde gerileme
 - Beyin sapına bası
 - Hidrosefali
 - >3 cm

Kaynaklar

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