神經系統與心智功能常見問題之評估:

1. 頭痛(headache)

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Introduction

- **Headache** can be a symptom of a number of different conditions of head.
- The brain tissue itself is not sensitive to pain because it lacks pain receptors.
- Rather, the pain is caused by disturbance of pain sensitive structures around the head.

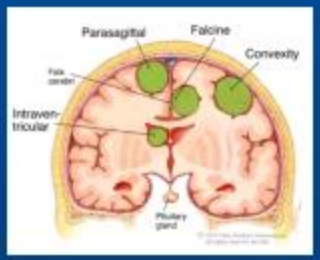
Pain Sensitivity of Cranial Structures

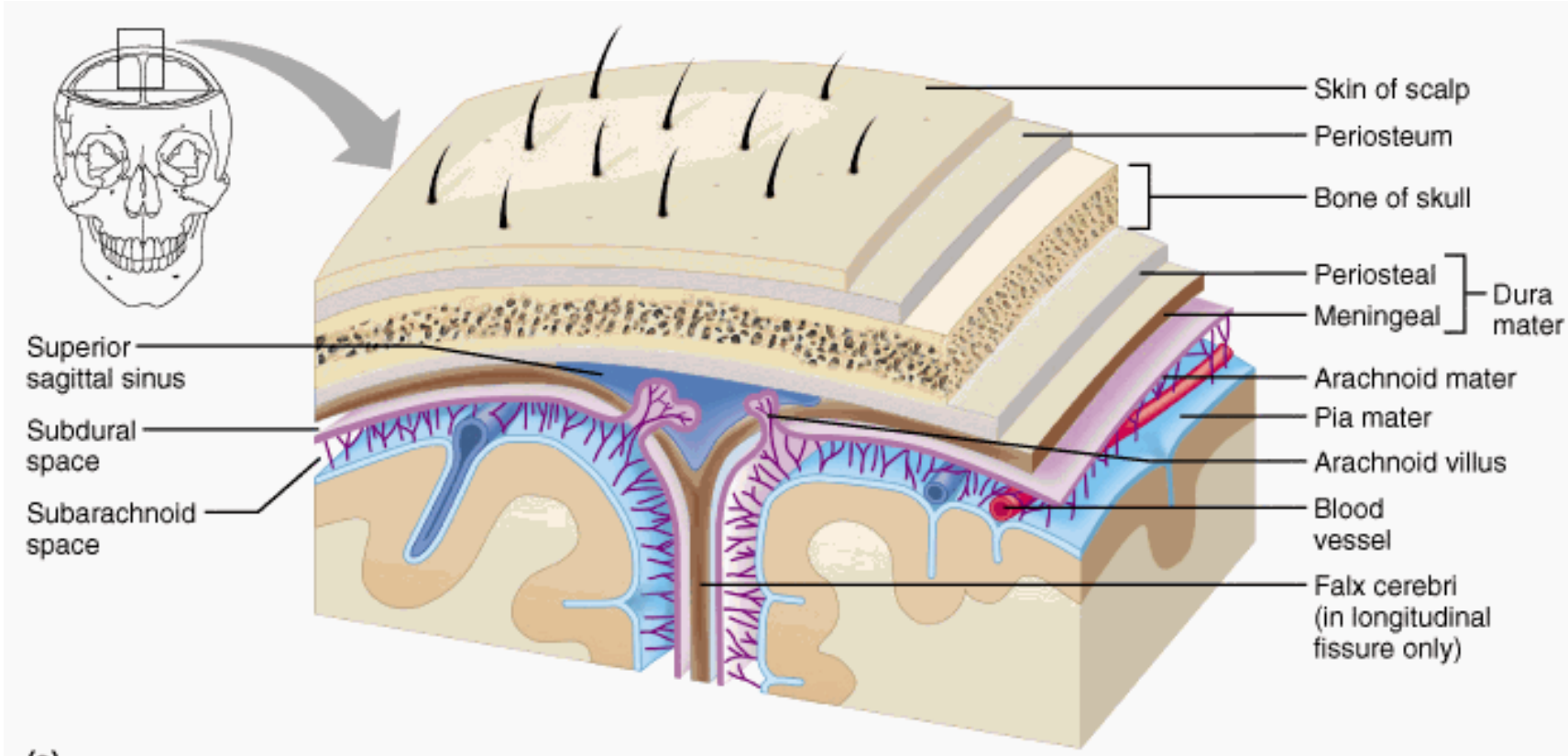
Pain-Sensitive

- Cranial venous sinuses with afferent veins
- Arteries at base of brain and their major branches
- Arteries of the dura
- Dura near base of brain and large arteries
- Dural, Cranial and extracranial nerves
- All extracranial structures

Pain-Insensitive

- Brain parenchyma
- Ependyma
- Choroid
- Pia
- Arachnoid
- Dura over convexity
- Skull





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Overall Approach

Chief Complaint: Headache

Headache Alarms

Evidence of serious headache disorder by history or physical exam

NO

YES

Diagnosis of Primary Headache Disorder

Work-up to identify/exclude secondary headache etiology

YES

NO

Treat Primary Headache

Consider work-up for secondary headache

Diagnostic Alarms

- Explosive headache
- Fever, meningismus
- Altered consciousness,seizure or focal neurologic deficits
- Wake up from midnight or early morning headache

General Mechanisms of Headache

- Traction on major intracranial vessels
- Distention, dilation of intracranial arteries
- Inflammation near pain sensitive structures
- Direct pressure on cranial or cervical nerves
- Sustained contraction of scalp muscles
- Stimulation from disease of eye, ear, nose and sinuses (referred pain)

Epidemiology

- 60-75% of adults have at least one headache/year
- 5-10% will seek physician evaluation
- Less than 10% of ED patients with chief complaint of headache will have emergent secondary cause

Epidemiology

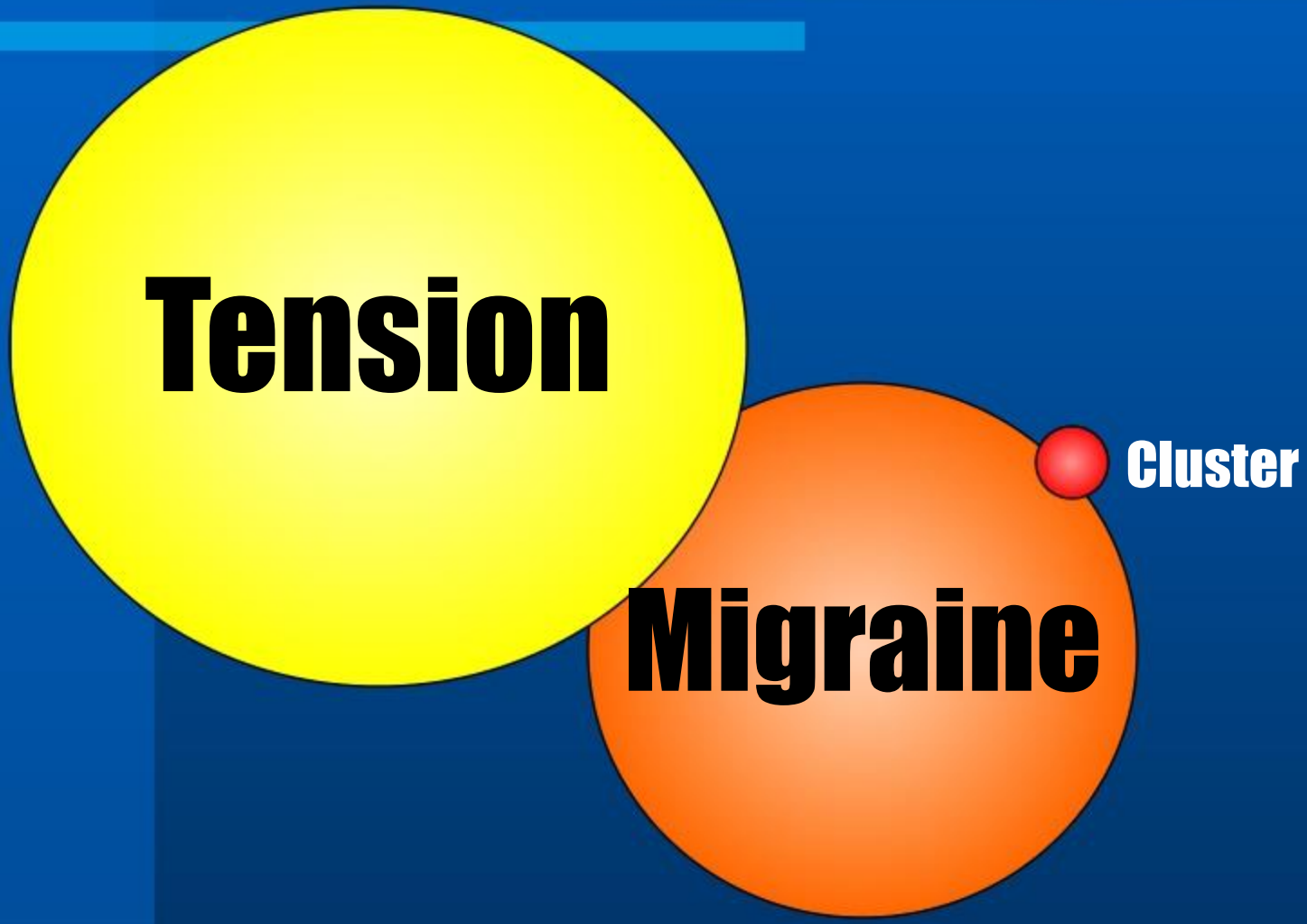
Primary Headache	Lifetime Prevalence
Tension headache	69%
Migraine	15%
Cluster headache	0.1%
Secondary Headache	
Fever	63%
Metabolic disorder	22%
Disorders of nose/sinuses	15%
Head trauma	4%
Disorders of eyes	3%
Vascular disorders	1%

Headache in the ED

Primary Headache	
Tension headache	32 %
Migraine	22 %
Cluster headache	< 1 %
Secondary Headache	
Subarachnoid Hemorrhage	< 1 %
Meningitis	< 1 %
Temporal Arteritis	< 1 %
Subdural Hematoma	< 1 %
CNS tumor	3 %
Miscellaneous illness	33 %
No specific diagnosis	7 %

Leicht M, Ann Emerg Med 1980;9:404

Primary Headache



Tension Headache

International Headache Society Diagnostic Criteria

1. Duration: 30 min to 7 days
2. Pain characteristics (at least 2)
   (1).Pressing/tightening quality
   (2).Mild to moderate severity
   (3).Bilateral location
   (4).No aggravation by routine physical activity
3. Associate symptoms (Must have both)
   (1).No nausea or vomiting
   (2).Photophobia and phonophobia are absence

Migraine Without Aura

International Headache Society Diagnostic Criteria

1. At least 5 or more periodic attacks
2. Duration: 4-72 h if untreated
3. Pain characteristics (at least 2)
   - Unilateral location
   - Pulsating quality
   - Moderate to severe intensity (inhibit daily activities)
   - Aggravation by walking stairs or similar physical activity
4. Associated symptoms (at least 1)
   - Nausea or vomiting
   - Photophobia and phonophobia

Migraine With Aura

International Headache Society Diagnostic Criteria

1. At least 2 or more periodic attacks
2. Aura characertistics
   - One or more fully reversible aura symptoms visual disturbance(flashing lights,Z-line),tingling in the face or hemiparesis and difficulty speaking
   - At least 1 aura symptom develops gradually over >4 minutes

Cluster Headache

International Headache Society Diagnostic Criteria

1. At least 5 or more periotic attacks
2. Duration: 15 to 180 minutes untreated
3. Pain characteristics: Severe pain(sharp,burning) over unilateral periorbital or temporal area
4. Associated autonomic symptoms:
   - Red eye, Lacrimation
   - Nasal congestion, Rhinorrhea
   - Forehead or face sweating
   - Ptosis, Miosis
5. Frequency: between 1 to 8 times/day
   Cyclical patterns: headache last for weeks or months,followed by remission periods
6. Trigger factors: Alcohol consumption, bright lights, strong smells(perfume,paint)

Cervicogenic Headache

International Headache Society Diagnostic Criteria

- Pain localized to the neck and occipital region. May project to forehead,orbital region, temporal, vertex or ears
- Pain is precipitated or aggravated by special neck movements or sustained postures
- At least one of the following:
  1. Resistance to or limitation of passive neck movements
  2. Changes in neck muscle contour, texture, tone or response to active and passive stretching and contraction
  3. Abnormal tenderness of neck muscles

Secondary Headache

- Intracranial hemorrhage
  - Subarachnoid Hemorrhage
  - Intracerebral hemorrhage
  - Subdural/epidural hematoma
- Meningitis/encephalitis
- Hypertensive encephalopathy
- Venous sinus thrombosis
- Hypoxia, carbon monoxide

Secondary Headache

- Temporal arteritis
- Mass lesions:Tumor, abscess, arteriovenous malformation
- Altitude sickness
- Metabolic: Hypoglycemia, fever, hypothyroid, anemia
- Glaucoma
- Pseudotumor cerebri (benign intracranial hypertension)

Secondary Headache

- Trigeminal Neuralgia
- Post-herpetic neuralgia
- Post-concussion syndrome
- Sinusitis
- Post-lumbar puncture
- Medications(Nitrate.Dipyridamole)
- post exertion, post coital

Overall Approach

Chief Complaint: Headache

Headache Alarms
Evidence of serious headache disorder
by history or physical exam

NO

YES

Diagnosis of
Primary Headache Disorder

Work-up to identify/exclude
secondary headache etiology

YES

NO

Treat Primary Headache

Consider work-up for
secondary headache

History

- Why did this headache bring you to the Emergency Department ?
  - First or Worst
  - Accompanied by new or frightening features
- How did this headache start ?
- Have you had previous similar headaches; if so when did this headache type start ?

History

- Where does it hurt?
  - Unilateral/bilateral
  - Frontal/temporal/occipital/facial
- What is the character of the pain?
  - Pulsatile, lancinating, tightness, Explosive
- What other symptoms do you experience?
  - Nausea, vomiting, phonophobia, photophobia Ptosis, lacrimation

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History

- Precipitating/aggravating factors
  - Trauma, exertion, noise, position, foods, drugs, weather, anxiety, menstration
- Relieving factors
  - Darkroom, position, pressing on scalp, medication
- Medical history
  - HIV, Cancer, HTN
  - Recent procedure (LP)
  - Change in medications

History

- Family History
  - Migraine
- Environment
  - Carbon monoxide

Physical Exam

- Vital signs
  - fever, high BP, hypoxia
- Head/face
  - trauma, bruits, tenderness
- Eyes
  - conjunctiva, cornea, pupils, fundi:papilledema
- Ears
  - OM or hemotympanum
- Mouth
  - Teeth, TMJ
- Neck
  - pain/stiffness/tenderness
  - Carotid and/or vertebral bruits
- Skin
  - rash
- Neurologic
  - Mental status
  - Pupils, EOM, Visual fields
  - Focal deficits
  - Horner's syndrome
  - Ataxia

Diagnostic Studies

- Computerized tomography
  - Hemorrhage, tumor, abscess, AVM
- Lumbar puncture
  - Infection, increased CSF pressure
- MRI, MRA, or Angiography
  - Aneurysm
- Laboratory studies based on suspected etiologies
  - ESR: Temporal arteritis
  - Carboxyhemoglobin: Carbon monoxide

Subarachnoid Hemorrhage

- Approximately 50% of have "sentinal bleed"
- 50% with "sentinal bleed" will rebleed within 2-6 wks
- Rebleed– 50% mortality
  - 50% of survivors have significant neurologic deficits
- Brain CT negative in 1-10% of cases
  - Sensitivity decreases with time from onset of sx
- LP if brain CT negative (RBC's 3 hrs, xanthochromia 12 hrs)
- Angiography if postive CT or LP

Temporal Arteritis

- > age of 50; more prevalent in women than in men
- Temporal artery tenderness, swelling, redness, nodularity
- Visual disturbance – Visual loss in 7-60% if untreated
- Jaw claudication
- Systemic symptoms–fever, B.W. loss, anorexia, malaise
- Closely related to Polymyalgia rheumatica (PMR)
- ESR usually > 50 (mm/hr),CRP
- Temporal artery biopsy– multinucleated giant cells / inflammatio
- Therapy: 1.High dose steroids
  2.Methotrexate

ED Treatment of Primary Headache

Tension headache:1.NSAID+muscle relaxant drug

Migraine: 1.Ergotamine/Lesiton(Dihydroergotamine)

2.Serotonin agonists: Sumitriptan 50 mg PO or 6.0 mg SQ

Cluster headache

1.100% oxygen

2.NSAIDS

3. Ergotamine/Lesiton(Dihydroergotamine)

4.Intranasal lidocaine

表 2. 急性偏頭痛的藥物治療

藥物	途徑	劑量	禁忌	不良作用	評論
Ibuprofen 或其他 NSAIDs	PO	400-800 mg	Aspirin 或 NSAIDs 相關支氣管痙攣	N，V，出血，腎功能不全	第一線治療；可能也有效
Ergotamine tattrate (Cafergot)	PO，SR PR	1-4 毫克 stat，然後 1-2 毫克 Q30 分鐘至最高劑量 6 毫克/次或 10 毫克/wk	心血管疾病，敗血症，肝臟或腎臟疾病，動脈機能不全，懷孕，哺乳，同時使用 macloride	N，V，食慾不振，肢體感覺異常或疼痛	用在 HA 發作時有最大效果；使用最小有效劑量會↓N 及 V
Isometheptene/ dichloraphenazone/ acetaminophen	PO	2 cap stat，然後 1 cap Q1H 至最大 5 cap /12 小時	見 Ergotamine tartate，避免病人服用 MAOIs	N，V，暈眩，嗜睡	和 ergotamine tartrate 一樣有效

藥物	途徑	劑量	禁忌	不良作用	評論
Sumatriptan	PO，IN SC	6 毫克 stat；在 1 小時內可重複	缺血性心臟病，24 小時內使用麥角生物鹼	頭或胸有重物感，針刺感，注射處疼痛	有效且忍受良好；成本限制廣泛使用；保留給頑固型偏頭痛或病受其他中斷病程的藥物人無法忍
Chlorpromazine	IM	1 毫克/公斤	心臟血管疾病	錐體外反應，鎮靜，低血壓	對頑固型偏頭痛；也有抗嘔吐作用
Morphine	IM	5-10 毫克	↑ICP 或頭部創傷且有眼底變化	鎮靜，換氣不足	對頑固型偏頭痛
Metoclopramide	PO IM	10 毫克 stat	腸胃道出血或阻塞；嗜鉻細胞瘤	錐體外反應，鎮靜，不安躁動	輔助性抗嘔吐治療；Prochlorperazine 也有效

表 4. 叢發性頭痛急性治療的常用藥物

藥物	途徑	劑量	禁忌	不良作用	評論
Ergotamin tartrate (Cefergot)、	SL PR	HA 發作時 1-2 毫克可在 5 分鐘內重覆(只有 SL)；不超過 6 毫克/單次發作或 10 毫克/週	心臟血管疾病，敗血症，肝或腎臟疾病，動脈機能不全，懷孕，哺乳，同時用 Macroide	N，V，食慾不振，肢體感覺異常或疼	SL ergotamine 可能有較快的作用；使用最小有效劑量以 ↓N 及 V.70-80 % 有效果。
Oxygen	吸入	7 升/分約 15 分鐘	—	—	作用快速；和 ergotamine tartrate 作用相等。
Sumatriptan	SC	HA 發作時給予 6 毫克	缺血性心臟病，24 小時內使用麥角生物鹼。	頭部或胸有重物感、針刺感、注射處疼痛。	並非 FDA 准許的適應症；昂貴但忍受度良好。

Prophylaxis Treatment of Primary Headache

1.Tension headache:

(1).NSAID+muscle relaxant drug

(2).Antidepressant &/or Anxiolytic drugs (Tricyclic antidepressant or/& SSRI)

2. Migraine:

(1).Betablockers: Propranolol

(2).Ca channel blocker: Verapamil

(3). Anticonvulsant: topiramate

3. Cluster headache

(1).Steroid

(2).Ergotamine/Lesiton(Dihydroergotamine)

(3). NSAIDS(Indomethacin)

(4). Lithium carbonate

表 3. 續常用來預防偏頭痛的藥物

藥物	劑量	功效	評論
Propranolol (lnderal)	10-40 毫克 BID-TID；以幾週的間隔緩慢↑劑量至有效或最大劑量 320 毫克/天	50~80％獲得完全或部分緩解；相當於 Methysergide	藥物預防的第一選擇因安全有效，和可容忍；Atenolol，Metoprolol，Nadolol 和 Timolol 也有效
Amitriptyline (Elav)	10-25 毫克 HS；以幾週的間隔 10-25 毫克/天↑劑量至 150 毫克/天↑；大部分 50-75 毫克/天應有好處	效果相當於 Propranolol 和 Methysergide	預防偏頭痛和緊張型頭痛有效
Verapamil (lsoptin，Calan)	80 毫克 TID；如需要，緩慢↑劑量至最大 480 毫克/天	50％獲得完全或部分緩解	最大效果延遲 1-2 個月，Nifedipine 和 diltiazem 效用有問題
Valproate (Depakote)	250 毫克；以幾週間隔 250 毫克/天↑至有效或有不良作用；大部分 1000-2000 毫克/天應有好處	50％獲得完全或部分緩解	容忍度良好；需要額外的確認功效
Methysergide (Sansert)	2-8 毫克/天每天分成 3-4 個劑量和食物一起服用	60-70％獲得完全或部份緩解	傾向多次給藥且有時有嚴重不良影響所以使用有限：每 6 月應計劃有藥物假期
Naproxen sodium	550 毫克	30％獲得完全或部分緩解	中度有效；對月經型偏頭痛有效

表 5. 預防叢發性頭痛的藥物

混合物	劑量/天	途徑	評論
Ergotamine tartrate (Cafergot)	0.25-0.5 毫克 BID -TID 5 天/週，1-2 毫克 BID 或 HS 對付夜間型 HA；最大 12 毫克/週	SC，PO SL，PR	在預期叢發性 HA 發作前
Indomethacin(Indocin)	50 毫克 TID	PO	對慢性叢發性 HA 有效。慢性叢發性 HA 的選擇性藥物；80%的病人有效。
碳酸鋰	600-1500 毫克	PO	
褪黑激素	10 毫克 QD	PO	在隨機控制試驗中證明有效；有慢性叢發性頭痛病人不反應。
Methylergonovine maleate	0.2 毫克 TID-QID	PO	在一個回顧性研究中 75%病人有效。
Methysergide	2 毫克 TID-QID	PO	65-70%有間斷性發叢發性頭痛有效；慢性發作叢發性 HA 較無效。
Prednisone	40 毫克 QID×2 天然後調降劑量約 5 毫克/天以達維持劑量 15-30 毫克 QID	PO	間斷性叢發性 HA 的第一線藥物；較 methysergide 作用更快且更有效；通常在 48 小時內有效；因為長期不良作用所以短暫一陣一陣的叢發性 HA 最好。
Triamcinolone	4-8 毫克 QID		對 Prednisone 無反應的病人可能有用。
Valproate	600-2000 毫克/天分次給藥 TID-QID		在一個開放性試驗 73%病人有效。