

The International Classification of Headache Disorders, 2nd Edition (ICHD-II)——

revision of criteria for 8.2 Medication-overuse headache

Sd Silberstein, J Olesen, M-G Bousser, H-C Diener, D Dodick, M First, Pj Goadsby, H Göbel, Mja Lainez, Jw Lance, Rb Lipton, G Nappi, F Sakai, J Schoenen & Tj Steiner on behalf of the International Headache Society

Cephalalgia

Volume 25 Issue 6 Page 460 - June 2005

國際頭痛疾病分類第二版—8.2 藥物過度使用頭痛 (Medication-overuse headache) 診斷標準修正

Introduction

簡介

The ICHD-II criteria for 8.2 *Medication-overuse headache* have been revised based on constructive criticism at the International Headache Research Seminar in Copenhagen in March 2004. The major changes are: (i) elimination of the headache characteristics; and (ii) a new subform (8.2.6 *Medication-overuse headache attributed to combination of acute medications*) that takes into account patients overusing medications of different classes but not any single class.

國際頭痛疾病分類第二版中 8.2 藥物過度使用頭痛 的診斷標準以 2004 年三月哥本哈根舉行的國際頭痛研究研討會上建設性的批評為基準已進行修正。主要的改變是 (1) 刪除頭痛特性，和 (2) 加入一個新的亞式 (8.2.6 歸因於合併急性藥物過度使用頭痛)，此因考慮到病人過度使用多種不同類藥物，而非單一種藥物。

The revised section is below.

修正部份如下

8. Headache attributed to a substance or its withdrawal

8. 歸因於物質或戒斷之頭痛

8.2 Medication-overuse headache (MOH)

8.2.1 Ergotamine-overuse headache

8.2.2 Triptan-overuse headache

8.2.3 Analgesic-overuse headache

8.2.4 Opioid-overuse headache

8.2.5 Combination analgesic-overuse headache

8.2.6 Medication-overuse headache attributed to combination of acute medications

8.2.7 Headache attributed to other medication

8.2.8 Probable medication-overuse headache

8.2 藥物過度使用頭痛(MOH) (Medication-overuse headache (MOH))

8.2.1 麥角胺過度使用頭痛 (Ergotamine-overuse headache)

8.2.2 翠普登過度使用頭痛 (Triptan-overuse headache)

8.2.3 止痛藥過度使用頭痛 (Analgesic-overuse headache)

8.2.4 鴉片類過度使用頭痛 (Opioid-overuse headache)

8.2.5 複合藥物過度使用頭痛 (Combination medication-overuse headache)

8.2.6 歸因於合併急性藥物過度使用頭痛 (Medication-overuse headache attributed to combination of acute medications)

8.2.7 其他藥物過度使用頭痛 (Headache attributed to other medication overuse)

8.2.8 可能藥物過度使用頭痛 (Probable medication-overuse headache)

General comment

一般說明：

Definite or probable? In the particular case of 8.2 *Medication-overuse headache*, a period of 2 months after cessation of overuse is stipulated in which improvement (resolution of headache, or reversion to its previous pattern) must occur if the diagnosis is to be definite. Prior to cessation, or pending improvement within 2 months after cessation, the diagnosis 8.2.8 *Probable medication-overuse headache* should be applied. If such improvement does not then occur within 2 months, this diagnosis must be discarded.

確定或可能？ 在 8.2 藥物過度使用頭痛 這個特別的例子中，規定停止過度使用兩個月的期限後，必須有進步（頭痛緩解或回復原來模式），診斷才可確定。於停藥前，或等待停藥後進步的兩個月內，必須用診斷 8.2.8 可能藥物過度使用頭痛。如果兩個月內頭痛並無進步，此診斷必須丟棄。

8.2 Medication-overuse headache (MOH)

8.2 藥物過度使用頭痛(MOH) Medication-overuse headache (MOH)

Previously used terms

Rebound headache, drug-induced headache, medication-misuse headache.

舊稱：

反彈頭痛(Rebound headache)、藥物引發之頭痛(drug-induced headache)、藥物誤用之頭痛
(medication-misuse headache)

Diagnostic criteria

- A Headache¹ present on ≥ 15 days/month fulfilling criteria C and D.
- B Regular overuse² for > 3 months of one or more drugs that can be taken for acute and/or symptomatic treatment of headache.³
- C Headache has developed or markedly worsened during medication overuse.
- D Headache resolves or reverts to its previous pattern within 2 months after discontinuation of overused medication.

診斷基準：

- A. 每月頭痛 (註1) ≥ 15 天，且符合基準C及D：
- B. 規則過度服用(註2)一或多種可作為急性及/或症狀頭痛治療的藥物(註3)，已 > 3 個月
- C. 藥物過度使用期間頭痛發生或明顯惡化
- D. 停止過度使用的藥物後，頭痛在2個月內緩解或回復原來模式

Comments

MOH is an interaction between a therapeutic agent used excessively and a susceptible patient. The best example is overuse of symptomatic headache drugs causing headache in the headache-prone patient. By far the most common cause of migraine-like headache occurring on ≥ 15 days per month and of a mixed picture of migraine-like and tension-type-like headaches on ≥ 15 days per month is overuse of symptomatic antimigraine drugs and/or analgesics. Chronic tension-type headache is less often associated with medication overuse but, especially amongst patients seen in headache centres, episodic tension-type headache has commonly become a chronic headache through overuse of analgesics.

說明：

藥物過度使用頭痛是較敏感病人與過度使用治療性藥劑的相互作用。最佳例子是過度使用症狀性頭痛治療藥物使易於頭痛(headache-prone) 病人產生頭痛。目前為止，過度使用症狀性偏頭痛藥物及/或止痛藥，是導致每個月 ≥ 15 天發生似偏頭痛之頭痛及每個月 ≥ 15 天發生混合似偏頭痛及似緊縮型頭痛之頭痛的情形最常見的原因。慢性緊縮型頭痛較少與藥物過度使用有關，但是陣發性緊縮型頭痛常因止痛藥過度使用而成爲慢性頭痛，特別是頭痛中心病人。

Patients with a pre-existing primary headache who develop a new type of headache or whose migraine or tension-type headache is made markedly worse during medication overuse should

be given both the diagnosis of the pre-existing headache and the diagnosis of 8.2

Medication-overuse headache.

對於既存在之原發性頭痛的病人產生新型頭痛，或在藥物過度使用期間其偏頭痛或緊縮型頭痛明顯惡化，應同時給原有頭痛及8.2 藥物過度使用頭痛 的診斷。

The diagnosis of MOH is clinically extremely important because patients rarely respond to preventative medications whilst overusing acute medications.

藥物過度使用頭痛的診斷在臨牀上特別重要，因為病人在過度使用急性藥物時，很少對預防性藥物有反應。

8.2.1 Ergotamine-overuse headache

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 *Medication-overuse headache*.

B Ergotamine intake on ≥ 10 days/month on a regular basis for > 3 months.

Comment

Bioavailability of ergots is so variable that a minimum dose cannot be defined

8.2.1 麥角胺過度使用頭痛 Ergotamine-overuse headache

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 每月規則服用麥角胺 ≥ 10 天，已 ≥ 3 個月

說明：

麥角鹼的生體可用率（bioavailability）變化大，所以無法定義最低劑量。

8.2.2 Triptan-overuse headache

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 *Medication-overuse headache*.

B Triptan intake (any formulation) on ≥ 10 days/month on a regular basis for > 3 months.

Comment

Triptan overuse may increase migraine frequency to that of chronic migraine. Evidence suggests that this occurs sooner with triptan overuse than with ergotamine overuse.

8.2.2 翠普登過度使用頭痛 Triptan-overuse headache

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 每月規則服用翠普登（任何劑型） ≥ 10 天，已 ≥ 3 個月

說明：

翠普登過度使用，可能使偏頭痛發生頻率增至慢性偏頭痛的頻率。證據顯示翠普登過度使用比麥角胺過度使用更快產生此型頭痛。

8.2.3 Analgesic-overuse headache

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 Medication-overuse headache

B Intake of simple analgesics on ≥ 15 days/month⁴ on a regular basis for > 3 months.

8.2.3 止痛藥過度使用頭痛 Analgesic-overuse headache

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 每月服用單純止痛藥(simple analgesics)≥15天〔註4〕，已>3個月

8.2.4 Opioid-overuse headache

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 Medication-overuse headache.

B Opioid intake on ≥ 10 days/month on a regular basis for > 3 months.

Comment

Prospective studies indicate that patients overusing opioids have the highest relapse rate after withdrawal treatment.

8.2.4 鴉片類過度使用頭痛 Opioid-overuse headache

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 每月服用鴉片類≥10天，已>3個月

說明：

前瞻性的研究指出，過度使用鴉片類之病人，在戒斷治療後，復發率最高。

8.2.5 Combination analgesic-overuse headache

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 Medication-overuse headache.

B Intake of combination analgesic medications⁵ on ≥ 10 days/month on a regular basis for > 3 months.

8.2.5 複合藥物過度使用頭痛 Combination medication-overuse headache

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 每月服用複合藥物〔註5〕≥10天，已>3個月

8.2.6 Medication-overuse headache attributed to combination of acute medications

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 *Medication-overuse headache*.

B Intake of any combination of ergotamine, triptans, analgesics and/or opioids on ≥

10 days/month on a regular basis for > 3 months without overuse of any single class alone.⁶

8.2.6 歸因於合併急性藥物過度使用頭痛

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 每月服用麥角胺、翠普登、止痛藥及/或鴉片類藥物 ≥10天，已>3個月，並無單獨過度使用單一種藥物（註6）

8.2.7 Headache attributed to other medication overuse

Diagnostic criteria

A Headache fulfilling criteria A, C and D for 8.2 *Medication-overuse headache*.

B Regular overuse⁷ for > 3 months of a medication other than those described above.

8.2.7 其他藥物過度使用頭痛 Headache attributed to other medication overuse

- A. 頭痛符合8.2 藥物過度使用頭痛基準A, C及D
- B. 規則過度使用〔註7〕一種藥物（非上述藥物）>3個月

8.2.8 Probable medication-overuse headache

Diagnostic criteria

A Headache fulfilling criteria A and C for 8.2 *Medication-overuse headache*.

B Medication overuse fulfilling criterion B for any one of the subforms 8.2.1 – 8.2.7.

C One or other of the following:

1 Overused medication has not yet been withdrawn.

2 Medication overuse has ceased within the last 2 months but headache has not so far resolved or reverted to its previous pattern.

8.2.8 可能藥物過度使用頭痛 Probable medication-overuse headache

診斷基準：

- A. 頭痛符合8.2 藥物過度使用頭痛基準A及C
- B. 頭痛符合上述8.2.1至8.2.7任何一個亞式的基準B

C. 有下列任何一項：

1. 過度使用的藥物尚未戒斷
2. 停止過度使用藥物不滿2個月，且頭痛尚未緩解或回復原來模式

Comments

Codable subforms of 8.2.8 *Probable medication-overuse headache* are 8.2.8.1 *Probable ergotamine-overuse headache*, 8.2.8.2 *Probable triptan-overuse headache*, 8.2.8.3 *Probable analgesic-overuse headache*, 8.2.8.4 *Probable opioid-overuse headache*, 8.2.8.5 *Probable combination analgesic-overuse headache*, 8.2.8.6 *Headache probably attributed to overuse of acute medication combinations* and 8.2.8.7 *Headache probably attributed to other medication overuse*.

說明：

8.2.8 可能藥物過度使用頭痛 的可登錄之亞式為8.2.8.1 可能麥角胺過度使用頭痛、8.2.8.2 可能翠普登過度使用頭痛、8.2.8.3 可能止痛藥過度使用頭痛、8.2.8.4 可能鴉片類過度使用頭痛、8.2.8.5 可能複合藥物過度使用頭痛、8.2.7.6 可能歸因於合併急性藥物過度使用頭痛及8.2.7.7 可能其他藥物過度使用頭痛。

Many patients fulfilling the criteria for 8.2.8 *Probable medication-overuse headache* also fulfil criteria for either 1.6.5 *Probable chronic migraine* or 2.4.3 *Probable chronic tension-type headache*. They should be coded for both until causation is established after withdrawal of the overused medication. Patients with 1.6.5 *Probable chronic migraine* should additionally be coded for the antecedent migraine subtype (usually 1.1 *Migraine without aura*).

許多病人符合8.2.8 可能藥物過度使用頭痛 的診斷基準，同時也符合1.6.5 可能慢性偏頭痛 或 2.4.3 可能慢性緊縮型頭痛 的診斷基準。過度使用的藥物戒斷後，因果關係確立前，這兩種類型都應被登錄。有1.6.5 可能慢性偏頭痛 的病人應另外登錄先前的偏頭痛亞型（通常為1.1 無預兆偏頭痛）。

Footnotes

¹The headache associated with medication overuse is variable and often has a peculiar pattern with characteristics shifting, even within the same day, from migraine-like to those of tension-type headache.

註記：

1. 和過度使用藥物相關的頭痛是可變的，通常有一種特別形式且特徵會改變，即使同一天內，可由似偏頭痛變成似緊縮型頭痛。

²Overuse is defined in terms of duration and treatment days per week. What is crucial is that

treatment occurs both frequently and regularly, i.e. on 2 or more days each week. Bunching of treatment days with long periods without medication intake, practised by some patients, is much less likely to cause medication-overuse headache and does not fulfil criterion B.

2. 過度使用的定義是以每週治療天數和使用期間為主。關鍵是治療必須頻繁且規則，即每週兩天或以上。部份病人在長期沒有服藥的情況下連續治療數天，不太可能產生藥物過度使用頭痛，且不符合基準B。

³MOH can occur in headache-prone patients when acute headache medications are taken for other indications.

3. **藥物過度使用頭痛** 會發生在易於頭痛(headache-prone) 的病人，當其使用急性頭痛藥物是因為其他適應症時。

⁴Expert opinion rather than formal evidence suggests that use on ≥ 15 days/month rather than ≥ 10 days/month is needed to induce analgesic-overuse headache.

4. 每月使用 ≥ 15 天才會引發止痛藥過度使用頭痛，而非使用 ≥ 10 天，這僅是專家意見，並未有正式證據。

⁵Combinations typically implicated are those containing simple analgesics combined with opioids, butalbital and/or caffeine.

5. 複合藥物一般是指含有單純止痛藥加上鴉片類、butalbital及/或咖啡因。

⁶The specific subform(s) 8.2.1–8.2.5 should be diagnosed if criterion B is fulfilled in respect of any one or more single class(es) of these medications.

6. 任何一種或多種藥物之基準B若符合，則應先診斷特定亞式8.2.1-8.2.5

⁷The definition of overuse in terms of treatment days per week is likely to vary with the nature of the medication.

7. 過度使用定義中的每週治療天數可能依據藥物特性而有不同。

Copyright

©International Headache Society 2003/4. Applications for copyright permissions should be submitted to Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK (Tel.: + 44 1865 776868; fax: + 44 1865 714591, website: <http://www.blackwellpublishing.com>)

©國際頭痛學會 2003/4. 版權允許的申請送到Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK (Tel.: + 44 1865 776868; fax: + 44 1865 714591, website: <http://www.blackwellpublishing.com>)

Any part of The International Classification of Headache Disorders, 2nd Edition, may be reproduced freely for scientific or clinical uses by institutions, societies or individuals. Otherwise, copyright belongs exclusively to the International Headache Society. Reproduction in any manner for commercial uses requires the Society's permission which will be granted on payment of a fee. Please contact the publisher at the address above.

Permission for translations must be applied for, and will be granted to National Headache Societies or Linguistic Groups of the International Headache Society. In the absence of a National Headache Society or Linguistic Group, a headache expert may be approved on behalf of the International Headache Society by the Chairman of the Headache Classification Subcommittee to be responsible for translation into a specific language. Sponsorships may be listed and advertisements accepted in translations.

Bibliography

- Ala-Hurula V, Myllyla V, Hokkanen E. Ergotamine abuse: results of ergotamine discontinuation with special reference to the plasma concentrations. *Cephalgia* 1982; **2**: 189–95.
- Ala-Hurula V, Myllyla V, Hokkanen E, Tokola O. Toluenic acid and ergotamine abuse. *Headache* 1981; **21**: 240–2.
- Allgulander C. History and current status of sedative-hypnotic drug use and abuse. *Acta Psychiatr Scand* 1986; **73**: 465–78.
- Andersson PG. Ergotamine headache. *Headache* 1975; **15**: 118–21.
- Baar HA. Treatment for headache: a four-step standardized withdrawal program for analgesic abusers. *Pain Clin* 1990; **3**: 173–7 (Abstract).
- Bennett WM, DeBroe ME. Analgesic nephropathy: a preventable renal disease. *N Engl J Med* 1989; **320**: 1269–71.
- Bowdler I, Killian J, Gänsslen Blumberg S. The association between analgesic abuse and headache coincidental or causal. *Headache* 1988; **28**: 494.
- Braithwaite RA. The toxicity of tricyclic and newer antidepressants. In: DeWolff FA, editor. *Handbook of clinical neurology*. New York: Elsevier Science, 1995: 311–20.
- Brust JC. Opiate addiction and toxicity, Chapter 16. In: DeWolff FA, editor. *Handbook of clinical neurology*, Vol. 65. New York: Elsevier Science, 1995: 356–61.
- Catarci T, Fiacco F, Argentino C. Ergotamine-induced headache can be sustained by sumatriptan daily intake. *Cephalgia* 1994; **14**: 374–5.
- Centonze V, Polite BM, diBari M, Caporaletti P, Albano O. Vascular injuries in ergotamine abuse: a case report. *Funct Neurol* 1993; **8**: 265–70.
- Dalquen P, Fasel J, Mihatsch MJ, Rist M, Rutishauser G. Phenacetinabusus IV. Sind zytologische Harnuntersuchungen in der Tumvorvorsorge bei Phenacetinabusern erfolgversprechend und anwendbar. *Schweizerische Med Wochenschr* 1980; **110**: 302–6.
- DeBroe ME, Elseviers MM. Analgesic nephropathy still a problem? *Nephron* 1993; **64**: 505

13.

- deMarinis M, Janiri L, Agnoli A. Headache in the use and withdrawal of opiates and other associated substances of abuse. *Headache* 1991; **31**: 159–63.
- Diamond S, Dalessio DJ. Drug abuse in headache. In: Diamond S, Dalessio DJ editors. *The practicing physician's approach to headache*. Baltimore: Williams & Wilkins, 1982: 114–21.
- Dichgans J, Diener. Clinical manifestations of excessive use of analgesic medication. In: Diener HC, Wilkinson M editors. *Drug-induced headache*. Berlin: Springer-Verlag, 1988: 8–15.
- Dichgans J, Diener HD, Gerber WD et al. Analgetika-induzierter dauerkopfschmerz. *Dtsch Med Wschr* 1984; **109**: 369–73.
- Diener HC. A personal view of the classification and definition of drug dependence headache. *Cephalgia* 1993; **13**: 68–71.
- Diener HC, Dahlof CG. Headache associated with chronic use of substances. In: Olesen J, Tfelt-Hansen P, Welch KMA editors. *The headaches*. Philadelphia: Lippincott Williams & Wilkins, 1999: 871–8.
- Diener HC, Dichgans J, Scholz E, Geiselhart S, Gerber WD, Bille A. Analgesic-induced chronic headache: long-term results of withdrawal therapy. *J Neurol* 1989; **236**: 9–14.
- Diener HC, Haab J, Peters C, Ried S, Dichgans J, Pilgrim A. Subcutaneous sumatriptan in the treatment of headache during withdrawal from drug-induced headache. *Headache* 1991; **31**: 205–9.
- Diener HC, Pfaffenrath V, Soyka D, Gerber WD. Therapie des medikamenten-induzierten dauerkopfschmerzes. *Münch Med Wschr* 1992; **134**: 159–62.
- Diener HC, Tfelt-Hansen P. Headache associated with chronic use of substances. In: Olesen J, Tfelt-Hansen P, Welch KMA editors. *The headaches*. New York: Raven Press Ltd, 1993: 721–7.
- Dige-Petersen H, Lassen NA, Noer J, Toennesen KH, Olesen J. Subclinical ergotism. *Lancet* 1977; **i**: 65–6.
- Drucker P, Tepper S. Daily sumatriptan for detoxification from rebound. *Headache* 1998; **38**: 687–90.
- Dubach UC, Rosner B, Pfister E. Epidemiologic study of abuse of analgesics containing phenacetin. Renal morbidity and mortality 1968–1979. *N Engl J Med* 1983; **308**: 357–62.
- Elkind AH. Drug abuse in headache patients. *Clin J Pain* 1989; **5**: 111–20.
- Elkind AH. Drug abuse and headache. *Med Clin N Am* 1991; **75**: 717–32.
- Evers S, Gralow I, Bauer B, Suhr B, Buchheister A, Husstedt IW et al. Sumatriptan and ergotamine overuse and drug-induced headache: a clinicoepidemiologic study. *Clin Neuropharmacol* 1999; **22**: 201–6.
- Fanciullaci M, Alessandri M, Pietrini U, Briccolani-Bandini E, Beatrice S. Long-term ergotamine abuse: effect on adrenergically induced mydriasis. *Clin Pharm Ther* 1992; **51**: 302–7.

- Fincham JE. Over-the-counter drug use and misuse by the ambulatory elderly: a review of the literature. *J Ger Drug Ther* 1987; **1**: 3–21.
- Fincham RW, Perdue Z, Dunn VD. Bilateral focal cortical atrophy and chronic ergotamine abuse. *Neurology* 1985; **35**: 720–2.
- Fisher CM. Analgesic rebound headache refuted. *Headache* 1988; **28**: 666.
- Friedman AP, Brazil P, vonStorch TJ. Ergotamine tolerance in patients with migraine. *JAMA* 1955; **157**: 881–4.
- Gaist D, Hallas J, Sindrup SH, Gram LF. Is overuse of sumatriptan a problem? A population-based study. *Eur J Clin Pharmacol* 1996; **50**: 161–5.
- Gaist D, Tsipopoulus I, Sindrup SH, Hallas J, Rasmussen BK, Kragstrup J. Inappropriate use of sumatriptan: population based register and interview study. *Br J Med* 1998; **316**: 1352–3.
- Granella F, Farina S, Malferrari G, Manzoni GC. Drug abuse in chronic headache: a clinicoepidemiologic study. *Cephalgia* 1987; **7**: 15–9.
- Gutzwiller F, Zemp E. Der Analgetikakonsum in der Bevölkerung und socioökonomische Aspekte des Analgetikaabusus. In: Mihatsch MJ editor. *Das Analgetikasyndrom*. Stuttgart: Thieme, 1986: 197–205.
- Hering R, Steiner TJ. Abrupt outpatient withdrawal from medication in analgesic-abusing migraineurs. *Lancet* 1991; **337**: 1442–3.
- Hokkanen E, Waltimo O, Kallanranta T. Toxic effects of ergotamine used for migraine. *Headache* 1978; **18**: 95–8.
- Horowski R, Ziegler A. Possible pharmacological mechanisms of chronic abuse of analgesics and other antimigraine drugs. In: Diener HC, Wilkinson M editors. *Drug-induced headache*. Berlin: Springer-Verlag, 1988: 95–104.
- Horton BT, Peters GA. Clinical manifestations of excessive use of ergotamine preparations and management of withdrawal effect: report of 52 cases. *Headache* 1963; **3**: 214–26.
- Isler H. Migraine treatment as a cause of chronic migraine. In: Rose FC editor. *Advances in migraine research and therapy*. New York: Raven Press, 1982: 159–64.
- Jaffe JH. Drug addiction and drug abuse. In: Gilman AG, Rall TW, Nies AS, Taylor P editors. *The pharmacological basis of therapeutics*. New York: Pergamon Press, 1985: 522–73.
- Katsarava Z, Fritzsche G, Muessig M, Diener HC, Limmroth V. Clinical features of withdrawal headache following overuse of triptans and other headache drugs. *Neurology* 2001; **57**: 1694–8.
- Kaube H, May A, Diener HC, Pfaffenrath V. Sumatriptan misuse in daily chronic headache. *Br Med J* 1994; **308**: 1573.
- Kielholz P, Ladewig D. Probleme des medikamentenmi beta-brauches. *Schweiz Arztezeitung* 1981; **62**: 2866–9.
- Klapper JA. Rebound headache: definition, symptomatology, treatment, and prevention. *Headache Q* 1992; **3**: 398–402.

- Kouyanou K, Pither CE, Rabe-Hesketh S, Wessely S. A comparative study of iatrogenesis, medication abuse, and psychiatric morbidity in chronic pain patients with and without medically explained symptoms. *Pain* 1998; **76**: 417–26.
- Kudrow L. Paradoxical effects of frequent analgesic use. *Adv Neurol* 1982; **33**: 335–41.
- Lader M. Hypnotics and sedatives. In: DeWolff FA editor. *Handbook of clinical neurology*. New York: Elsevier Science, 1995: 329–55.
- Lance F, Parkes C, Wilkinson M. Does analgesic abuse cause headache *de novo*? *Headache* 1988; **28**: 61–2.
- Lance JW. A concept of migraine and the search for the ideal headache drug. *Headache* 1990; **30**: 17–23.
- Limmroth V, Kazarawa S, Fritzsche G, Diener HC. Headache after frequent use of new 5-HT agonists zolmitriptan and naratriptan. *Lancet* 1999; **353**: 378.
- Limmroth V, Katsarava Z, Fritzsche G, Przywara S, Diener HC. Features of medication overuse headache following overuse of different acute headache drugs. *Neurology* 2002; **59**: 1011–4.
- Lucas RN, Falkowski W. Ergotamine and methysergide abuse in patients with migraine. *Br J Psychiatry* 1973; **122**: 199–203.
- Ludolph AC, Husstedt IW, Schlaake HP, Grottemeyer KH, Brune GG. Chronic ergotamine abuse: evidence of functional impairment of long ascending spinal tracts. *Eur Neurol* 1988; **28**: 311–6.
- MacGregor EA, Vorah C, Wilkinson M. Analgesic use: a study of treatments used by patients for migraine prior to attending the City of London migraine clinic. *Headache* 1990; **30**: 634–8.
- Manzoni GC, Micieli G, Granella F, Sandrini G, Zanferrari C, Nappi G. Therapeutic approach to drug abuse in headache patients. In: Diener HC, Wilkinson M editors. *Drug-induced headache*. Berlin: Springer-Verlag, 1988: 143–9.
- Marks V. Reactive (rebound) hypoglycemia. In: Marks V, Rose CF editors. *Hypoglycemia*. Oxford: Blackwell, 1981: 179–217.
- Mathew NT. Amelioration of ergotamine withdrawal symptoms with naproxen. *Headache* 1987; **27**: 130–3.
- Mathew NT, Kurman R, Perez F. Drug induced refractory headache—clinical features and management. *Headache* 1990; **30**: 634–8.
- Michultka DM, Blanchard EB, Appelbaum KA, Jaccard J, Dentinger MP. The refractory headache patient—2. High medication consumption (analgesic rebound) headache. *Behav Res Ther* 1989; **27**: 411–20.
- Micieli G, Manzoni GC, Granella F, Martignoni E, Malferrari G, Nappi G. Clinical and epidemiological observations on drug abuse in headache patients. In: Diener HC, Wilkinson M editors. *Drug-induced headache*. Berlin: Springer-Verlag, 1988: 20–8.
- Nicolodi M, DelBianco PL, Sicuteri F. The way to serotonergic use and abuse in migraine. *Int J Clin Pharmacol Res* 1997; **17**: 79–84.
- Page H. Rebound headache from ergotamine withdrawal. *JAMA* 1981; **246**: 719.

- Peters G, Horton BT. Headache: with special reference to the excessive use of ergotamine preparations and withdrawal effects. *Proc Mayo Clin* 1951; **26**: 153–61.
- Pini LA, Trenti T. Case report: does chronic use of sumatriptan induce dependence? *Headache* 1994; **34**: 600–1.
- Pradalier A, Dry S, Baron JF. Céphalée induite par l'abus de tartrate d'ergotamine chez les migraineux. *Concours Méd* 1984; **106**: 106–10.
- Rahman A, Segasothy M, Samad SA, Zulfiqar A, Rani M. Analgesic use and chronic renal disease in patients with headache. *Headache* 1993; **33**: 442–5.
- Rapoport A, Stang P, Guterman DL, Cady R, Markley H, Weeks R et al. Analgesic rebound headache in clinical practice: data from a physician survey. *Headache* 1996; **36**: 14–9.
- Rapoport AM. Analgesic rebound headache. *Headache* 1988; **28**: 662–5.
- Rapoport AM, Weeks RE. Characteristics and treatment of analgesic rebound headache. In: Diener HC, Wilkinson M editors. *Drug-induced headache*. Berlin: Springer-Verlag, 1988: 162–7.
- Roswell AR, Neylan C, Wilkinson M. Ergotamine induced headache in migraineous patients. *Headache* 1973; **13**: 65–7.
- Sandler DP, Smith JC, Weinberg CR, Buckalew VM, Dennis VW, Blythe WB, Burgess WP. Analgesic use and chronic renal disease. *N Engl J Med* 1989; **320**: 1238–43.
- Saper JR. Drug abuse among headache patients. In: Saper JR editor. *Headache disorders*. Boston: PSG Publishers, 1983: 263–78.
- Saper JR. Drug overuse among patients with headache. *Neurol Clin* 1983; **1**: 465–77.
- Saper JR. Daily chronic headaches. *Neurol Clin N Am* 1990; **8**: 891–902.
- Saper JR, Jones JM. Ergotamine tartrate dependency: features and possible mechanisms. *Clin Neuropharmacol* 1986; **9**: 244–56.
- Schnider P, Aull S, Baumgartner C et al. Long-term outcome of patients with headache and drug abuse after inpatient withdrawal: five-year followup. *Cephalalgia* 1996; **16**: 481–5.
- Schnider P, Aull S, Feucht M. Use and abuse of analgesics in tension-type headache. *Cephalalgia* 1994; **14**: 162–7.
- Schnider P, Maly J, Grunberger J, Aull S, Zeiler K, Wessely P. Improvement of decreased critical flicker frequency in headache patients with drug abuse after successful withdrawal. *Headache* 1995; **35**: 269–72.
- Schoenen J, Lenarduzzi P, Sianard-Gainko J. Chronic headaches associated with analgesics and/or ergotamine abuse: a clinical survey of 434 consecutive outpatients. In: Rose FD editor. *New advances in headache research*. London: Smith-Gordon, 1989: 29–43.
- Seller EM, Busto UE, Kaplan HL, Somer G, Baylon GJ. Comparative abuse liability of codeine and naratriptan. *Clin Pharmacol Ther* 1998; **63**: 121.
- Shakir RA. Vitamin toxicity. In: DeWolff FA editor. *Handbook of clinical neurology*, Vol. 65. New York: Elsevier Science, 1995: 567–76.

- Silberstein SD, Lipton. Chronic daily headache. In: Goadsby PJ, Silberstein SD editors. *Headache*. Newton: Butterworth-Heinemann, 1997: 201–25.
- Silberstein SD, Lipton RB, Solomon S, Mathew NT. Classification of daily and near daily headaches: proposed revisions to the IHS classification. *Headache* 1994; **34**: 1–7.
- Silberstein SD, Silberstein JR. Chronic daily headache: prognosis following inpatient treatment with repetitive IV DHE. *Headache* 1992; **32**: 439–45.
- Stewart JH. Analgesic abuse and renal failure in Australia. *Kidney Int* 1978; **13**: 72–8.
- Sullivan JT, Sellers EM. Treatment of the barbiturate abstinence syndrome. *Med J Aust* 1986; **145**: 456–8.
- Taschner KL, Wiesbeck GA. Psychiatric aspects of drug addiction of the barbiturate-alcohol type. In: Diener HC, Wilkinson M editors. *Drug-induced headache*. Berlin: Springer-Verlag, 1988: 80–4.
- Tfelt-Hansen P. Ergotamine headache. In: Pfaffenrath V, Lundberg P, Sjaastad O editors. *Updating in headache*. Berlin: Springer, 1985: 169–72.
- Tfelt-Hansen P. The effect of ergotamine on the arterial system in man. *Acta Pharmacol Toxicol* 1986; **59**: 1–29.
- Tfelt-Hansen P, Krabbe AA. Ergotamine. Do patients benefit from withdrawal? *Cephalgia* 1981; **1**: 29–32.
- Tfelt-Hansen P, Olesen J. Arterial response to ergotamine tartrate in abusing and non-abusing migraine patients. *Acta Physiol Scand* 1981; **48**: 69–72.
- Tfelt-Hansen P, Paalzow L. Intramuscular ergotamine: plasma levels and dynamic activity. *Clin Pharmacol Ther* 1985; **37**: 29–35.
- Tfelt-Hansen PPR, Saxena, Ferrari. Ergot alkaloids. In: DeWolff FA editor. *Handbook of clinical neurology*. New York: Elsevier Science, 1995: 61–7.
- Timmings PL, Richens. Neurotoxicology of antiepileptic drugs. In: DeWolff FA editor. *Handbook of clinical neurology*. New York: Elsevier Science, 1995: 495–513.
- Vasconcellos E, Pina-Garza JE, Millan EJ, Warner JS. Analgesic rebound headache in children and adolescents. *J Child Neurol* 1998; **13**: 443–7.
- Verhoeff NPLG, Visser WH, Ferrari MD, Saxena PR, van Royen EA. Dopamine D₂ receptor imaging with 123-I-iodobenzamide SPECT in migraine patients abusing ergotamine: does ergotamine cross the blood brain barrier. *Cephalgia* 1993; **13**: 325–9.
- VonKorff M, Galer BS, Stang P. Chronic use of symptomatic headache medications. *Pain* 1995; **62**: 179–86.
- Walker J, Parisi S, Olive D. Analgesic rebound headache: experience in a community hospital. *Southern Med J* 1993; **86**: 1202–5.
- Warner JS. Rebound headaches: a review. *Headache Q* 1999; **10**: 207–19.
- Zed PJ, Loewen PS, Robinson G. Medication-induced headache: overview and systematic review of therapeutic approaches. *Ann Pharmacother* 1999; **33**: 61–72.

Ziegler DK. Opiate and opioid use in patients with refractory headache. *Cephalalgia* 2000; **14**: 5–10.