

## **Appendix 1 (as supplied by the authors): Framework and content of the intervention of the LIMIT study**

### Background

The training was based on the learning cycle of Kolb<sup>1</sup>. According to this cycle effective and sustainable learning is the result of a process during which four phases act in coherence. These four phases are: concrete experience, reflective observation, abstract conceptualization and active experimentation. We facilitated different learning styles by using various teaching methods: theory, group discussion about example cases, reflection on group discussion, and planning the intervention in own practice. To ensure that the participants were well-prepared to put the intervention into practice we used the Pyramid of Miller (knows, knows how, shows how, does) as a guide in the development of the training.<sup>2</sup>

### First meeting

#### *Introduction (30 min)*

- Background of the LIMIT study
- Migraine: incidence, prevalence and disease burden

#### *Diagnostic and treatment of migraine<sup>1-5</sup> (20 min)*

- Diagnostic methods
  - o Distinction between migraine headache, tension-type headache, combinations of tension-type headache and migraine headache, drug-induced headache, and cluster headache.
  - o Use of a headache diary
- Migraine attack treatment
  - o Stepwise approach based on the headache guideline of the Dutch College of General Practitioners: 1) paracetamol + anti-emetic, 2) NSAID + anti-emetic, 3) triptan
  - o Use, adverse effects and contraindications of triptans
- Treatment for tension-type headache, migraine headache, and combinations of tension-type headache and migraine headache

#### *Prophylaxis<sup>6-10</sup> (30 min)*

- Indications
- Goals of prophylactic treatment
- Advantages of prophylactic treatment
- Perceptions of patients
- Prophylactics: beta-blocker / sodium valproate
  - o Titration scheme (see supplement 1)
  - o Adverse effects
  - o Contraindications
  - o Duration of prophylactic treatment
- Menstrual migraine

---

<sup>1</sup> Kolb, D. A. and Fry, R. (1975) Toward an applied theory of experiential learning. in C. Cooper (ed.) *Theories of Group Process*, London: John Wiley).

<sup>2</sup> Miller GE. The assessment of clinical skills/competence/performance. *Acad. Med.*; 1990; 65(9):63-67

- Definition
- Treatment possibilities

*Consultation (30 min)*

Role-play: start prophylaxis with an ambivalent patient.

*Questions/discussion (10 min)*

## Second meeting

### *Drug-induced headaches<sup>11-22</sup> (30 min)*

- Diagnosis of medication-overuse headache and triptan-overuse headache
- Risk factors
- Motivation of patients to stop using headache inducing substance
- Withdrawal protocol (see supplement 2)
- Consequences of withdrawal for patients
- Follow-up of patients
- Long term results of withdrawal according to literature
- Prevention of medication-overuse headaches

### *Consultation (45 min)*

Role-play: patient with drug-induced headache

### *Action plan intervention (30 min)*

- Patients who are prescribed •2 triptans per month are selected from the Electronic Patient Records
- Practice nurse invites the patients for an evaluation consultation
- Evaluation consultation consists of:
  - o Make sure patient understands reason for the evaluation consultation
  - o Discuss complaints, medication use and patient satisfaction with treatment
  - o Evaluation of diagnosis and current treatment
  - o Follow-up:
    - Patients with adequate treatment: continue treatment and advise patient to contact practice if attack frequency increases or if attacks become aggravated
    - Patients with inadequate attack treatment: improve attack treatment using tips provided in the training
    - Patients eligible for prophylaxis: discuss the possibility of prophylactic treatment (see supplement 1, prophylaxis protocol)
    - Patients with medication-induced headache: discuss discontinuation of medication or other headache inducing substances (see supplement 2, medication-induced headache protocol)
- Report to researchers about evaluation consultation

### *Questions/discussion (15 min)*

## **Supplement 1. Protocol for migraine prophylaxis in the general practice**

### Step 1 Beta-blocker

In case of an indication for prophylaxis and no contraindications for the use of a beta-blocker (see table below) then the preferred first method of treatment is a beta-blocker. The dosage is to be built up to the minimum effective dose using the schedule below. Propanolol and metoprolol have both been proven effective in the prevention of migraine attacks. The choice of drug is to be determined by the preference of and experience of the prescribing GP.

#### *Propanolol*

Starting dosage: 20 mg 2 dd

If effect is deemed insufficient, double dosage after two weeks: 40 mg 2dd

If effect is still deemed insufficient, double dosage after another two weeks: 80 mg 2dd

It is also possible to prescribe a retard tablet once a day.

#### *Metoprolol*

Starting dosage 50 mg 2 dd

If effect is deemed insufficient, double dosage after two weeks: 100 mg 2dd

It is also possible to prescribe metoprolol succinate once a day

It is also possible to prescribe a retard tablet once a day.

#### *Follow-up*

At least 6 months, preferably 9 – 12 months of prophylactic treatment. In monotherapy and usual dosage for prophylaxis it is not necessary to taper off, medically speaking, however psychologically it can be useful.

### Step 2. Sodium valproate (Depakine®)

Sodium valproate must be gradually built up due to the possibility of adverse effects if the therapy is immediately started with therapeutic dosages.

Week 1            1 dd 300 mg

Week 2            2 dd 300 mg

Week 3-6        3 dd 300 mg

If the effect is deemed insufficient, the dosage can be raised to maximally 2 dd 600 mg.

#### *Follow-up*

At least 6 months, preferably 9-12 months of prophylactic treatment. Taper off sodium valproate to 300 mg a week.

## **Supplement 2. Protocol drug withdrawal in the general practice**

- Once the diagnosis has been made the patient can make an appointment the GP about when to start the withdrawal
- Withdrawal will be undergone in an ambulatory setting without any drugs, except occasionally prokinetic agents for nausea/vomiting
- During a separate consultation the procedure will be explained and the GP will discuss which problems may occur
  - o After abrupt discontinuation of the drugs the headaches will get worse during 1-2 weeks. After that the patient will hit a plateau after which the symptoms will begin to dissipate. After 2 months an improvement can usually be seen, although sometimes this can take up to three months.
  - o If the treatment was originally given for chronic headache, this headache may disappear or the original headache may come back but less frequently. This headache will require adequate treatment.
- At the agreed moment the patient will abruptly stop using all painkillers, triptans, ergotamine, combination painkillers and caffeine containing products.
- Advise the patient to stay well hydrated.
- After a week, at the end of the rebound phase, the GP will contact the patient to check and if necessary provide the patient with support, moral or otherwise.
- Four weeks later the GP will schedule a consultation with the same goal.
- For triptans the expected timeframe for headache relief is about 2 months after withdrawal, for other analgesics after 3 months. At that moment the GP may decide to start prophylactic therapy.
- Relapse must be prevented by minimizing the attack treatment to well under the critical dosage for developing medication-overuse headache and maybe start prophylactic treatment as well (at least 2 to 3 months after the withdrawal from the headache inducing drugs).

## References

### Diagnostic methods and migraine attack treatment

1. Dekker F. Hoofdpijn. Serie Practicum Huisartsgeneeskunde. Maarssen: Elsevier gezondheidszorg; 2007.
2. Diamond S, Bigal ME, Silberstein S, et al. Patterns of diagnosis and acute and preventive treatment for migraine in the United States: results from the American Migraine Prevalence and Prevention study. *Headache* 2007;47(3):355-63.
3. Farmacotherapeutisch Kompas. College voor Zorgverzekeringen (CVZ) <http://www.fk.cvz.nl>, 2006.
4. IHS Classification ICHD-II. International Headache Society. <http://www.ihs-classification.org/de/>.
5. Knuistingh Neven A, Bartelink MEL, Jongh TOH de, et al. NHG-Standaard Hoofdpijn. *Huisarts Wet* 2004;46:411-22.

### Migraine prophylaxis

6. Schrader H, Stovner LJ, Helde G, et al. Prophylactic treatment of migraine with angiotensin converting enzyme inhibitor (lisinopril): randomised, placebo controlled, crossover study. *BMJ* 2001;322(7277):19-22.
7. Lipton RB, Bigal ME, Diamond M, et al. Migraine prevalence, disease burden, and the need for preventive therapy. *Neurology* 2007;68(5): 343-9.
8. Modi S, Lowder DM. Medications for migraine prophylaxis[review]. *Am Fam Physician* 2006;73(1):72-8.
9. Knuistingh Neven A, Bartelink MEL, Jongh TOH de, et al. NHG-Standaard Hoofdpijn. *Huisarts Wet* 2004;46:411-22.
10. Tronvik E, Stovner LJ, Helde G, et al. Prophylactic treatment of migraine with an angiotensin II receptor blocker: a randomized controlled trial. *JAMA* 2003;289(1):65-9.
11. Dekker F, Knuistingh Neven A, Andriess B, Ferrari MD, Assendelft WJJ. Prophylactic treatment of migraine; the patient's view, a qualitative study. In preparation 2010.
12. Dekker F, Knuistingh Neven A, Andriess B, Ferrari MD, Assendelft WJJ. Prophylactic treatment of migraine by general practitioners; a qualitative study. In preparation 2010.

### Drug-induced headache

13. Diener HC, Limmroth V. Medication-overuse headache: a worldwide problem. *Lancet Neurol* 2004;3(8):475-83.
14. Dodick D, Freitag F. Evidence-based understanding of medication-overuse headache: clinical implications. *Headache* 2006;46(Suppl 4):S202-11.

15. Headache Classification Committee. New appendix criteria open for broader concept of chronic migraine – brief report. *Cephalalgia* 2006;26:742-6.
16. Katsarava Z, Muessig M, Dzagnidze A, et al. Medication overuse headache: rates and predictors for relapse in a 4-year prospective study. *Cephalalgia* 2005;25(1):12-5.
17. Limmroth V, Katsarava Z. Medication overuse headache. *Curr Opin Neurol* 2004;17(3):301-6.
18. Maizels M. The patient with daily headaches. *Am Fam Physician* 2004;70(12):2299-306.
19. Sheftell FD, Tepper SJ, Rapoport AM. Analgesic use: a predictor of chronic pain in medication overuse headache: the Head-HUNT study. *Neurology* 2004;62(4):677.
20. Silberstein SD, Olesen J, Bousser MG, Diener HC, Dodick D, First M, et al. The International Classification of Headache Disorders, 2nd edition (ICHD-II) – revision of criteria for 8.2 Medication-overuse headache. *Cephalalgia* 2005;25(6):460-5.
21. Timothy R, Smith TR, Stoneman J. Medication overuse headache from antimigraine therapy. Clinical features, pathogenesis and management. *Drugs* 2004;64(22):2503-14.
22. Wiendels NJ, Haan J, Knuistingh Neven A, et al. Chronische dagelijkse hoofdpijn en overmatig gebruik van hoofdpijnmedicatie. In: Knuistingh Neven A, redacteur. *Hoofdpijn en migraine anno 2001*. Alphen aan den Rijn: Van Zuiden Communications, 2001.
23. Wiendels NJ, Haestregt A van, Knuistingh Neven A, et al. Chronic frequent headache in the general population: comorbidity and quality of life. *Cephalalgia* 2006;26(12):1443-50.
24. Wiendels NJ, Knuistingh Neven A, Rosendaal F, et al. Chronic frequent headache in the general population: prevalence and associated factors. *Cephalalgia* 2006;26(12):1434-42.