

10. Purvin VA. Visual disturbance secondary to clomiphen citrate. *Arch Ophthalmol.* 1995;113:482-484.
11. Friedman DI, Hu EH, Sadun AA. Neuro-ophthalmic complications of interleukin 2 therapy. *Arch Ophthalmol.* 1991;109:1679-1680.
12. Kawasaki A, Purvin V. Persistent palinopsia following ingestion of lysergic acid diethylamide (LSD). *Arch Ophthalmol.* 1996;114:47-50.
13. McGuire PK, Cope H, Fahy TA. Diversity of psychopathology associated with use of 3,4-methylenedioxymethamphetamine ('Ecstasy'). *Br J Psychiatry.* 1994;165(3):391-395.
14. Critchley M. Types of visual perseveration: "Paliopsia" and "illusory visual spread." *Brain.* 1951;74:267-299.
15. Shank RP, Gardocki JF, Streeter AJ, Maryanoff BE. An overview of the preclinical aspects of topiramate: Pharmacology, pharmacokinetics, and mechanism of action. *Epilepsia.* 2000;41:S3-S9.
16. Storer RJ, Goadsby PJ. Topiramate inhibits trigemino-vascular neurons in the cat. *Cephalalgia.* 2004;24:1049-1056.
17. Akerman S, Goadsby PJ. Topiramate inhibits cortical spreading depression in rat and cat: Impact in migraine aura. *Neuroreport.* 2005;16:1383-1387.

Efficacy of Therapeutic Intervention in Headache Units in Patients With Frequent Headaches: The EFUNCE Study

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Data confirming that therapeutic intervention in headache units is superior to care received by patients in other levels of the health system are scant. This is a pilot study that includes patients seen in 4 headache units for at least 1 year, who had a headache frequency of more than 15 days per month. The results of the first 30 patients showed a significant improvement in different headache parameters and a high degree of satisfaction with the treatment received.

Key words: headache units, tertiary headache centers, efficiency

Headache disorders are a global public-health problem because they are frequent and disabling lifelong diseases.¹

Effective health care can relieve much of the symptom burden of most headache disorders, and thereby mitigate both the human and financial costs. Most patients with headaches who seek care are treated in a primary care setting. This care could be appropriate and effective in many patients, but often other comorbid illnesses, behavioral prob-

lems, or excesses in treatment exist, requiring a specialized approach. A longitudinal study of patients with headaches treated in a primary care setting showed that 20% of them continue with significant pain and disability at 2 years.²

These factors underscore the need for tertiary headache care. While the need for such systems of care may be clear, it remains necessary for such systems of care to demonstrate their impact on headache and other cost-sensitive figures of outcome. The value of this approach is well documented in the field of pain.³ There are few data underscoring the effectiveness of specialized tertiary headache clinics⁴ and only recently there are some data coming from an academic headache clinic.⁵

For these reasons, we decide to investigate the efficacy of headache clinics in the treatment of headache in Spain. In this report, we present the pilot study that was done in 4 different headache units with the aim of evaluating the efficacy of therapeutic intervention in headache units in comparison with other care levels in order to validate a protocol

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that would allow us to carry out a big prospective program. (EFUNCE study: Eficacia de las Unidades de Cefalea. Efficacy of Headache Units)

MATERIALS AND METHODS

For this pilot study, we retrospectively analyzed the clinical records of a group of patients attending headache clinics in 4 different hospitals around the country that fulfill the following criteria: history of frequent headache (over 15 days a month) in the first consultation and follow-up of at least 1 year in the headache clinic.

For each patient, the following items were available: clinical diagnosis, treatment received, paraclinical studies performed, disability scale (MIDAS—migraine disability assessment),⁶ quality-of-life scale (SF-36),⁷ and a satisfaction questionnaire. The patients were classified using the International Classification of Headache Disorders-II.⁸

For the analysis, we compared the patient's situation at the first consultation with the results after a 1-year follow-up and treatment in the headache clinics.

RESULTS

Thirty patients were included in this pilot study, 4 of which were male and 26 were female. The mean age was 46 years (19 to 64). On average, their headache frequency was 26 days/month (19 to 30) and their primary headaches had lasted 17 years (2 to 26).

The diagnosis was chronic tension-type headache (TTH) in 8 cases, migraine in 3 cases, and migraine and TTH in 21 cases. A total of 22 patients were overusing medication.

The average number of previous consultations related with the headaches was 8.3 (3 to 18). During the first year of follow-up in the headache clinics, the average of consultations, including the initial evaluation, was 4.3.³⁻⁷

The majority of patients (80%) were physician referred and the other came from the emergency department and other health professionals. All were unsatisfied or very unsatisfied with the assistance received previously.

Only 30% of patients had received preventive treatment before attending our clinics and triptans had been prescribed in only 10%, in a population where over 70% were severe migraineurs.

After 1 year of treatment in our clinics, the headache frequency was reduced in more than 50% in 80% of the patients and in more than 25% in 86% of patients. A total of 90% of the overusers of symptomatic medication reduced their consumption below the overuse level. On average their headache frequency was reduced to 9.3 days/month (range: 1 to 30). These results strongly correlated with changes in

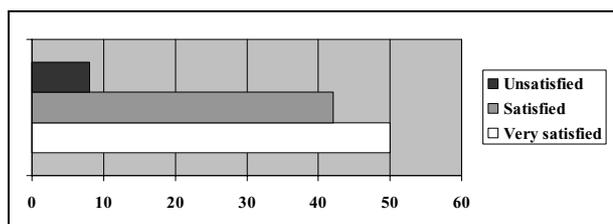


Fig.—Degree of satisfaction of patients after 1 year of treatment.

the disability and quality-of-life scales. The mean MIDAS score was reduced significantly from 81 to 28; there was a patient that changed from 210 to 4. The quality of life improved in all domains of the SF-36 and significantly in mental health, social functioning, pain, and physical role. Finally, 92% of patients were satisfied or very satisfied with the treatment (none declared to be satisfied in the first consultation; Fig.).

COMMENTS

This pilot study shows that headache units are efficient in treatment of headache patients, even in difficult cases, as they offer a high degree of clinical improvement, satisfaction, and important benefits regarding disability and quality of life. The study has limitations because it is a pilot study, but the population is representative of the patients with frequent headaches attending headache clinics.⁵ Some people can argue that the patients could receive different treatments because they were treated in different clinics; in our opinion, this is an advantage because it allows us to measure the efficacy of the structure independently of the place. Other concern could be that we are not comparing our group to nontreated patients or patients treated in other clinical settings such as primary care, but most of them had been treated before at the primary care level, and the number of previous consultations for headache was high. The treated group consisted of patients who failed to improve with standard therapy and had a very long history of headache.

We have shown that the clinical improvement with a reduction in headache frequency in more than 80% of patients, and a significant reduction of medication overuse up to 90%, correlates with a spectacular reduction of disability and with an important improvement in quality of life. This success was very well recognized by these patients, as 92% of them were satisfied or very satisfied after attending the headache clinic during a year.

With these results, this concept seems to be cost-effective for the society, but in the future studies it should be necessary to include measures of direct and, especially,

indirect costs, which could be highly reduced with a specialized practice.⁴ It should also be important to analyze within a larger number of patients whether certain subgroups such as refractory patients would improve more in a tertiary center, as has been suggested for posttraumatic headaches.⁵

In conclusion, with these data, coming from the clinical practice, we show some evidence that tertiary headache centers are useful for patients and society. However, there is very little scientific evidence on the cost-effectiveness of this specialized care in the headache field. Our results call for future studies analyzing these points, which could serve to convince health authorities on the necessity and usefulness of headache clinics.

Conflicts of Interest: None

REFERENCES

1. Leonardi M, Steiner TJ, Scher AT, Lipton RB. The global burden of migraine: Measuring disability in headache disorders with WHO's Classification of Functioning, Disability and Health (ICF). *J Headache Pain*. 2005;6:429-440.
2. Von Korff M, Ormel J, Keefe FJ, Dworkin SF. Grading the severity of chronic pain. *Pain*. 1992;50:133-149.
3. Becker N, Sjogren P, Bech P, Olsen AK, Eriksen J. Treatment outcome of chronic non-malignant pain patients managed in a Danish multidisciplinary pain centre compared to general practice: A randomised controlled trial. *Pain*. 2000;84:203-211.
4. Saper JR, Lake AE, Madden S, Kreeger C. Comprehensive/tertiary care for headache: A 6-month outcome study. *Headache*. 1999;39:249-263.
5. Zeeberg P, Olesen J, Jensen R. Efficacy of multidisciplinary treatment in a tertiary referral headache centre. *Cephalalgia*. 2005;25:1159-1167.
6. Stewart WF, Lipton RB, Kolodner K. Migraine disability assessment (MIDAS) score: Relation to headache frequency, pain intensity, and headache symptoms. *Headache*. 2003;43:258-265.
7. Stewart AL, Greenfield S, Hays RD. Functional status and well being of patients with chronic conditions: Results of the Medical Outcomes Study. *JAMA*. 1989;262:902-913.
8. Headache Classification Subcommittee of the International Headache Society. The international classification of headache disorders. 2nd edition. *Cephalalgia*. 2004;(suppl. 1):1-160.