Arq Neuropsiquiatr 2009;67(3-A):595-599

GENERAL PRACTICE PHYSICIAN KNOWLEDGE ABOUT HEADACHE

Evaluation of the municipal continual medical education program

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Abstract – **Objective:** Headache is a common condition not always managed satisfactorily by primary care providers (PCPs). In an effort to improve headache care, the Curitiba City Hall in consortia with Hospital de Clínicas da Universidade Federal do Paraná – Brazil developed an educational program directed to the PCPs. The goal of the project was to evaluate, to update and to train the PCP on headache knowledge and care. **Method:** The program was designed to have a theoretical phase and a practical phase. Knowledge on headache and medical care of headache were surveyed before and after the theoretical phase thorough a specific questionnaire. **Results:** Significant improvement in post-CME scores on headache prevalence ($p<0.001$), migraine diagnosis ($p<0.001$) and management ($p=0.01$), secondary headache diagnosis ($p=0.005$) and management ($p=0.005$) was reached by the respondents. **Conclusion:** Improvement in post-CME scores confirms that the program had a significant immediate impact on the PCPs knowledge directly affecting the patient's health.

KEY WORDS: headache, continuous medical education, general practice physician, public health.

Conhecimento dos médicos generalistas sobre cefaléias: avaliação de um programa municipal de educação médica continuada

Resumo – **Objetivo:** Cefaléia é uma condição comum nem sempre tratada de forma adequada pelos médicos generalistas (MG). Com o objetivo de melhorar essa situação, a Prefeitura de Curitiba em parceria com o Hospital de Clínicas da Universidade Federal do Paraná – Brasil desenvolveu um programa para os MG. O objetivo principal desse projeto foi avaliar, atualizar e capacitar médicos a respeito do conhecimento e manejo das cefaléias. **Método:** O programa consistiu de uma fase teórica e uma fase prática. O conhecimento sobre cefaléia e seu manejo foi avaliado através de um questionário específico antes e depois da fase teórica. **Resultados:** Significativa melhora no pós-teste nos itens de prevalência de cefaléias ($p<0,001$), diagnóstico de migrânea ($p<0,001$) e seu manejo ($p=0,01$), diagnóstico de cefaléia secundária ($p=0,005$) e seu manejo ($p=0,005$) foram alcançados pelos participantes. **Conclusão:** Melhorias na pontuação dos pós-testes confirmam que o programa teve um impacto imediato e significante no conhecimento dos MG afetando diretamente a saúde dos pacientes.

PALAVRAS-CHAVE: cefaléia, educação médica continuada, médicos generalistas, saúde pública.

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Received 9 September 2008, received in final form 14 May 2009. Accepted 10 June 2009.

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Headache is a common and debilitating condition with great impact on work and social activities. It causes great economic harm due to lost workdays and decreased work effectiveness. In addition to that, the importance of primary care for headache is related to the consequences of a considerable consumption of drugs. In Brazil the prevalence and impact of migraine have been assessed in several populations like hospital employees and university students[1,2]. Queiroz et al. found the 1-year gender- and age-adjusted prevalence of migraine in Brazil to be 15.2%[3]. A study in Vitoria, the largest city of Espirito Santo state, showed a headache prevalence of 52.8%[2]. According to this study, most headache sufferers are not under regular medical treatment and use analgesic drugs without proper orientation. The most common compounds are combinations with caffeine (33%) and popular over the counter analgesics (52.3%). In that study, the prevalence of headache was also higher among women (63.9%) and less common among people older than 55 years old[2].

Most studies showed a uniform prevalence of headache in different social and economic groups. However, in recent surveys an increased risk of headache has been found in lower-income groups[4]. In spite of the evident burden of the headaches and of the increasing availability of effective treatments, the management of headache remains less than satisfactory. Of all headache sufferers who consult a physician, about two thirds consult their primary care providers (PCPs), i.e., general practitioners, family practitioners, internists, pediatricians and obstetricians/gynecologists[5,6]. Thereafter, they may not be fully current on research-based diagnostic criteria or recently developed guidelines and treatment[7]. Traditionally, the vehicle for improving physician knowledge and skills has been Continuing Medical Education (CME). Optimal CME is highly self-directed, with content, learning methods and learning resources selected specifically for the purpose of improving the knowledge, skills and attitudes that physicians must acquire in their daily professional lives aiming to improve patient care. CME should be done with evidence-based medicine (EBM), which promotes the use of current best evidence in making decisions about the health care of individual patients. Its practice means integrating individual clinical expertise with clinical evidence from systematic research and its main principle is that clinical decisions should be based on the best available scientific evidence of previous experience and the conclusions based on such evidence should stimulate quality improvements in patient care[8]. It is important to say that CME must not only emphasize the acquisition of knowledge, but also instruct physicians in the process of decision making to help enable them to better use their knowledge and make clinical judgments[9].

With the intent of using the educational potential of the CME, the Curitiba City Hall in consortia with a group of experts from the Instituto de Neurologia de Curitiba and the Universidade Federal do Paraná – Brazil, developed a program to primary care physicians. The main goal of the project was to evaluate, to update and to train the physicians in the most prevalent headaches cases. This theoretical basis would be the first step of the training program, which involved a subsequent practical phase during which the participant physicians would participate of a major outpatient task force during which they would attend to about 1,365 headache visits to be carried out in three weekends, supervised by neurologists trained in headache medicine. The findings of the practical part of the training will be published in another paper.

The objective of this study, as part of the main project, was to assess the knowledge of the participants about commonest headaches through pre-CME surveys and post-CME surveys, to evaluate the extent to which the CME program improve headache knowledge to those PCPs.

METHOD

This course in headache is a part of the training program of the Curitiba City Hall. About 70 physicians chose spontaneously our course, 52 PCPs returned completed questionnaires (74% response rate). All incomplete tests were discarded.

The four lectures took 3.5 hours followed by group discussions and finally by supervised clinical practice in three other dates. All physicians were provided with a guidebook. The lectures were given by neurologists with expertise in headache from the Universidade Federal do Paraná, Brazil.

The questionnaire consisted of 20 questions, with three initial questions on the prevalence of headache, a fourth question on migraine impact, and the remaining 16 questions were based on clinical vignettes and surveyed diagnosis, history taking, physical examination and management (Table). The time needed for completion was 10 to 15 minutes for each clinical vignette.

All analysis were performed using Acastat® statistical software (version 5.6.3 le). The data were analyzed from two separate samples: pre-CME and post-CME for the attendees. The impact of the CME intervention was assessed by comparing the pre-CME scores with the post-CME scores with each individual question and with overall media. We used two-sample z-test for difference of proportions for individual question. The p values lesser than 0.05 were considered to be significant, and other measurements were considered significant according to the statitician orientation.

RESULTS

Scores lower than 60% on seven key questions, which we can be observed on the Figure 1, were arbitrarily defined as indicative of poor baseline knowledge. Three questions that were less than 60% on the pre-CME scores improved to higher than 60% in the post-CME scores.

Table. Baseline headache knowledge of the CME-tested and respondent primary care physicians (n=52) and educational intervention impact.

Question number	Category of question	Attendee's Pre-CME correct scores (%)	Attendee's Post-CME correct scores (%)	Change in Pre-CME and Post-CME scores (p value)
1*	Headache prevalence	36.5	78.8	<0.001
2	Migraine prevalence	36.5	53.8	0.079
3	Chronic diary headache prevalence	32.7	48.0	0.242
4	Migraine impact	82.7	86.5	0.582
5	Migraine diagnosis	90.2	80.7	0.157
6	History taking/physical examination	76.47	76.9	0.717
7	Migraine management	66.67	65.3	0.916
8	Migraine management	90.2	92.3	0.724
9 *	Migraine diagnosis	53.8	88.4	<0.001
10	History taking/physical examination	80.7	82.6	0.797
11	Migraine management	50.0	51.9	0.92
12*	Migraine management	67.3	88.4	0.01
13	Migraine status diagnosis	76.9	61.5	0.103
14	History taking/physical examination	86.5	88.4	0.764
15	Migraine status management	57.6	73.0	0.09
16	Migraine status management	73.0	82.6	0.277
17*	Secondary headache diagnosis	65.3	88.4	0.006
18	History taking/physical examination	80.7	65.3	0.09
19*	Secondary headache management	65.3	88.4	0.005
20	Secondary headache management	23.0	30.7	0.423

*Statistically significant.

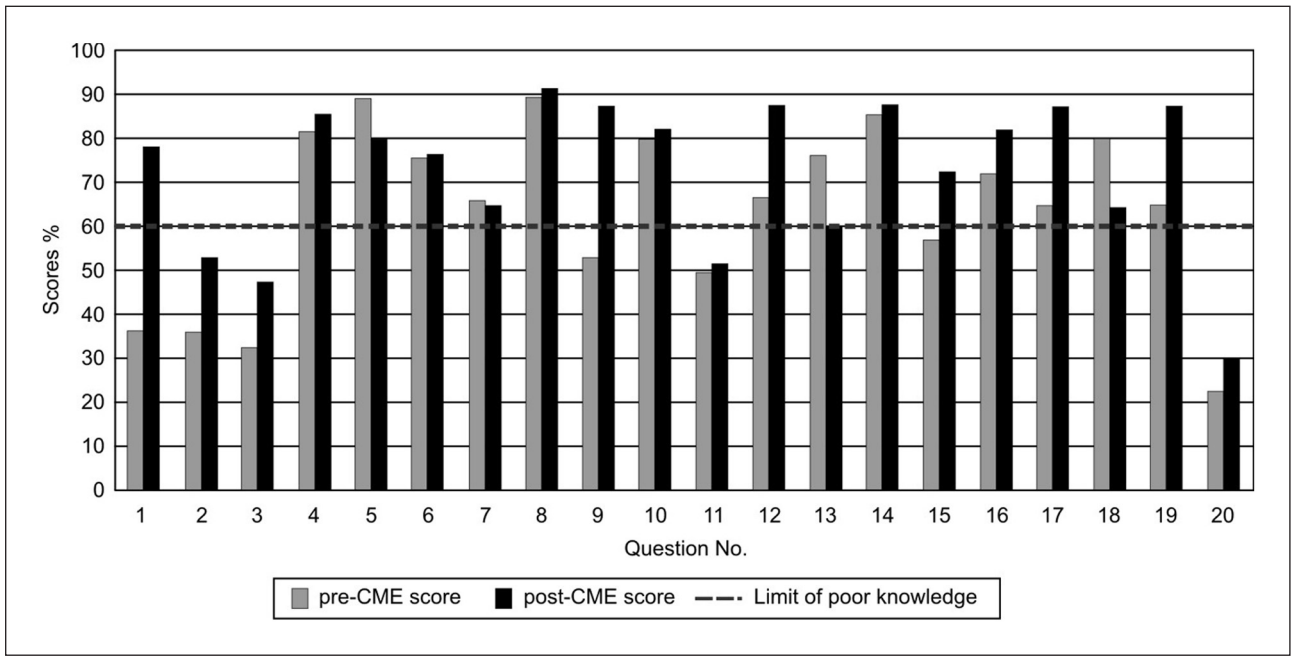

Fig 1. Comparison of Pre-CME and Post-CME scores of attending and respondent physicians (n=52).

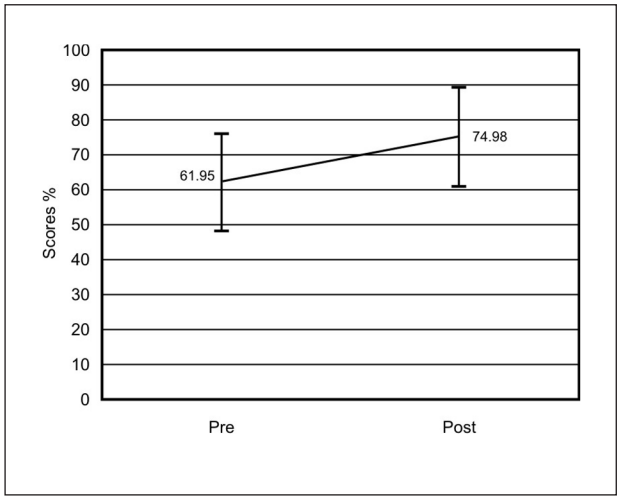

Fig 2. Comparison of respondent's Pre-CME and Post-CME overall mean scores (n=52).

Scores on some questions showed little or no impact of the CME, and 4 questions showed worse scores in post-CME tests, but those were not statistically significant (Table). The best pre-CME scores were observed on the case 1 (first case about migraine), on the other hand, the epidemiology questions have had the worst pre-CME scores.

Significant improvement after the CME was noted on the question 1 ($p<0.001$) about prevalence of general headache; on the question 9 ($p<0.001$) about diagnosis of migraine; on the question 12 ($p=0.01$) about management of migraine; on question 17 ($p=0.006$) about diagnosis of secondary headache; and on the question 19 ($p=0.005$) about management of secondary headache. The other questions did not reach statistically significant improvement (Table).

Post-CME scores, 74.9% (standard deviation 14.7), compared to baseline scores, 61.9% (standard deviation 14.2), showed significant overall improvement ($p<0.001$) (Fig 2).

DISCUSSION

A previous study carried out in a population of physicians related to the one evaluated at this study had shown difficulties regarding the diagnosis of migraine by generalists[10]. In that study, the major cause for not diagnosing migraine were lack of knowledge about migraine features, such as duration of pain, associated symptoms and pain features, in this order. This previous study had anticipated the results obtained by us in the first part of the current study.

In this study we compared pre-CME and post-CME results of a group of 52 physicians who attended the headache training program. The pretest scores gave us a clear sign about the participant baseline knowledge of headache, indicating a poor awareness about the epidemiology and pathophysiology of the commonest headaches. Improvement in post-CME scores confirms that the program has a significant immediate impact on the PCPs knowledge, what probably affected positively the quality of patient care.

A similar but greater study of the American Headache Society determined the extent to which the CME program has brought participant knowledge, attitudes and skills. They developed a 20-item questionnaire that covered the essential elements of migraine care. A chi-square analysis revealed a statistically significant difference between pre-CME and post-CME scores for 16 of 20 questions. They achieved post-CME scores improvement confirming that the program has a significant immediate impact on the knowledge, beliefs and attitudes of participants, and also suggesting emphasizes need in some areas that the post-CME scores showed no improvement.

Headache misdiagnoses may not only reduce chances of a correct treatment but also lead to further secondary chronification due to drug abuse. Vincent and de Carvalho evaluated how headache patients are approached before getting to a headache specialist. Correct diagnosis had previously been made in only 44.9%, 6.7% and 26.7% of migraine, tension-type headache and cluster headache patients, respectively. The patients underwent 501 investigative procedures motivated by the headache, averaging 1.2 examinations per patient, mostly EEGs. The study found that the majority of headache patients did not deserve specialized care and could be diagnosed and treated by qualified physicians and concluded that educational programs based on local needs should be encouraged[11].

One study described the status of headache education in medical schools and academic departments of neurology and found that, essentially, all respondents believe that migraine is a valid neurological disorder and an important subject to teach in medical school[12]. Two-thirds of the respondents found headache education either inadequate or had no opinion on the theme (neutral)[12]. This may offer a partial explanation for the underdiagnosis of migraine[10].

In another study a questionnaire with 20 general questions and 20 headache specific questions was mailed to 200 general practitioners from Germany, France and Portugal[13]. The study revealed that the majority of the general practitioners can improve their knowledge and management of headache disorders and they also want to be updated on headache with diagnosis, treatment, etiology and pathophysiology. Based on the questionnaires results, the European Neurological Networks developed a multimedia educational tool for general practitioners. That kind of approach could also improve the attitudes of the general practitioners on the lead of patients with headache.

Karli et al. investigated the effect of a 2-day headache education program for general practitioners primarily on diagnostic accuracy. The program included theo-

retical lectures and face-to-face patient evaluation with headache specialists. Three general practitioners participated, interviewing 30 patients before and 30 patients after the educational program. The diagnostic accuracy increased from 56.3% to 81% ($p<0.001$) and the choice of proper treatment was also improved ($p=0.04$). Karli et al. propose standardizing of such educational programs and giving it to GPs working in the primary care setting, hereafter locally arranging of this kind of approach by the universities[14].

Peters et al. using an evidence-based approach that stresses the importance of making the correct diagnosis, patient focused management and appropriate referrals to appropriate agencies to maximize benefits for patients, propose multidisciplinary working regarding migraine and headache management in primary healthcare[15]. Such multidisciplinary approach associated with continual medical education of the primary care physicians could improve the efficiency of primary health care on headache issues.

Marinopoulos et al., in their review concluded that the literature overall supported the concept that CME was effective, at least to some degree, in achieving and maintaining the objectives studied, including knowledge, attitudes, skills, practice behavior and clinical practice outcomes. Still, more research is needed to determine which types of media, techniques and exposure volumes as well as what internal and external audience characteristics are associated with improvements in outcomes[16].

Thus, education of physicians must play an important role in improving headache care, continual education helps to overcome barriers to headache care and improve headache management. Emphasis must be placed on differential diagnosis of primary headaches, the importance of the clinical history and the relative uselessness of ancillary investigations, since almost all headaches are primarily benign and can be managed by practicing clinicians.

ACKNOWLEDGEMENTS – The authors express their appreciation and thanks to Ms. Marisa Avelar de Morais for the review of style.

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