

Headache at high school: clinical characteristics and impact

M. C. Tonini · F. Frediani

© Springer-Verlag 2012

Abstract Although migraine (MH) and tension type headache (TTH) are the most common and important causes of recurrent headache in adolescents, they are poorly understood and not recognized by parents and teachers, delaying the first physician evaluation for correct diagnosis and management. The purpose of this study is to assess the knowledge about headache impact among the students of a Communication Private High School in Rimini city, and to evaluate the main different types of headaches interfering with school and social day activities. A self-administered questionnaire interview was given to students of the last 2 years of high school; ten items assessed the headache experience during the prior 12 months, especially during school time: the features and diagnosis of headaches types (based on the 2004 IHS criteria), precipitating factors, disability measured using the migraine disability assessment (MIDAS); therapeutic intervention. Out of the 60 students, 84 % experienced recurrent headache during the last 12 months. 79 % were females, aged 17–20 years; a family history was present in 74 % of headache students, in the maternal line; 45 % of subjects were identified as having MH and 27 % TTH; 25 % had morning headache and 20 % in the afternoon; fatigue, emotional stress and lack of sleep were the main

trigger factors for headache, respectively in 86, 50 and 50 % of students; 92 % of headache students could not follow the lessons, could not participate in exercises and physical activity because of the headache; none had consulted a medical doctor and the 90 % of all students had never read, listened or watched television about headache. This study remarks on the need to promote headache educational programs, starting from high school, to increase communication between teachers–family–physician and patient-adolescents, with the goal to have an early appropriate therapeutic intervention, improvement of the quality of life and to prevent long-term headache disease in the adult age.

Keywords Migraine · Tension type headache · Impact · Adolescents · High school

Introduction

Headaches are very frequent in adolescence, especially migraine headache (MH) and tension type headache (TTH), whose prevalence is respectively, 8–10 and 15–20 % [1–6]. They can be seriously disabling, interfering with various aspects of everyday life, not just in the family but particularly at school and in inter-person relations [7]. MH is more likely to be associated with stressful experiences such as excessive school demands, school overload, social isolation, perceived teacher unfairness or, later, job dissatisfaction [8, 9]. Even so, relatives and teachers often fail to understand headache and underrate it, and delay sending the sufferer to consult a doctor for appropriate treatment, preferring self-medication.

The aim of this study was to assess the impact of headache among high school students and examine the

M. C. Tonini
Headache and Cerebrovascular Disease Center,
Clinic “S. Carlo”, Paderno Dugnano (MI), Italy

M. C. Tonini (✉)
Via Gerolamo Arganini, 36, 20162 Milan, Italy
e-mail: mariaclara.tonini@tin.it

F. Frediani
Neurology and Stroke Unit, Headache Center,
“S. Carlo Borromeo” Hospital, Milan, Italy

main types of headaches that interfere with school and daytime social activities.

Materials and methods

Students in the two senior classes at the Communication Private High School “Maestre Pie” in Rimini (Italy) were invited to take part in a study to assess their experience of headaches during the previous 12 months, especially during school time. A self-administered questionnaire interview was done during school hours, consisting of ten items which reported basic personal details and family history; diagnosis of headache based on three typical headache features (according to the 2004 IHS diagnostic criteria), one for MH, one for TTH and one for unclassifiable headache; at what time of day the headache started, triggering factors; disability measured using the migraine disability assessment (MIDAS); and treatment. Descriptive statistical analysis was done.

Results

A total of 60 students aged 17–20 years, 79 % females, were analyzed; 84 % (51) reported recurrent headache during the last 12 months; 25 % had headache during morning lessons, 20 % in the afternoon and only 3 % in the evening; 52 % did not specify. A family history was reported by 74 % of the sufferers, in the maternal line. Nearly half, 53 % (27 subjects), were identified as having MH and 31 % (16) TTH; the remaining 16 % (8) had unclassifiable headaches. In 37 % of the MH sufferers the headache lasted from 6 to 72 h; it was strong in 36 %; pulsating in 43 %, and got worse with movement (gym, jogging, going up stairs) in 57 %. A quarter (25 %) felt nauseous during the attack and 7 % vomited. Just over half (52 %) reported photophobia and 72 % phonophobia; 43 % did not eat during their break or at lunch.

Among those who reported TTH, 30 % had pain throughout the head; 30 % said it was mild and 44 % moderate.

Table 1 lists the main causes of the headaches. The most frequent triggers were tiredness, stress in general or in relation to some task or tests during a lesson, and too little sleep.

The MIDAS questionnaire was completed by 45 headache students. Of these, 62 % (28) rated their disability as grade I, minimal or infrequent (mean score 1.64); 17 % (8) rated it as grade II, mild or infrequent (mean score 8.37); 11 % (5) opted for grade III, moderate (mean score 14.2) and 9 % (4) for grade IV, severe (mean score 51.25). Most of the headache sufferers (92 %) had trouble following

Table 1 Triggers or factors aggravating headache

Trigger or aggravating factor	No.	%
Tiredness	43	72
Stress	25	42
Too little sleep	25	42
Hours in front of PC, TV, or video games	24	12
Menstruation	24	12
Too much sleep	19	10
Changes in the weather	16	8
Problems with parents	14	7
Problems with friends	13	6.5
Commuting by bus or car	12	6
Hunger	10	5
Alcoholic beverages (beer, wine)	10	5
Emotions	9	4.5
Problems with teachers	8	4
Smoking	6	3
Fear	5	2.5
Sweets	2	1

lessons, doing afternoon sport, and completing their homework.

To relieve their headaches, 56 % took over-the-counter analgesics. None of the students who complained of strong, seriously debilitating headache (9) had ever taken anything to prevent it.

In response to the question of what ideas they had about the headache, 92 % gave no reply; 90 % had never read anything about headache or watched or listened to a program on TV or radio.

Discussion

To date, there are only few studies of headache at school, and our findings that 84 % of children suffer headaches at school are in line with other reports [8, 10–12]. We found more MH patients than in other studies but, although the percentage was lower, it was always higher than TTH [2, 10].

In the present study headache peaked during morning lessons or in the afternoon. This might be related to “school stressors”, as mentioned in earlier studies of the impact of headache during schooltime, and the relationships between recurrent headaches and various psychological stressors [8, 11, 13, 14]. We too found that tiredness and stress were the most frequently reported triggers, followed by lack of sleep—probably all related; 92 % of headache sufferers said they had trouble following lessons

because of these problems. Among the MH sufferers, 20 % had medium–high MIDAS scores, similarly to previous case series [15].

Nearly 90 % had never tried to obtain information on their headaches, and more than half used OTC products for pain relief. None had ever consulted a specialist or a headache center to find about prevention or the most appropriate therapeutic strategies.

Educational program must be drawn to raise awareness on the suffering students about their condition and the possibility to face these diseases correctly. It is well demonstrated that such awareness can reduce the intake of drugs and can minimize the risk of developing a medication-overuse headache [16]. Moreover, taking the specific drugs can improve the course of migraine and can restore the normal functional condition [17].

Conclusions

This study highlights the need to promote headache education programs, starting at high school, to improve communication between teachers, family, physicians, and adolescent patients, with the goal of early, appropriate therapeutic intervention in order to avoid the need for self-medication, to improve the quality of life, and to prevent long-term or progressive headaches in adult life.

Acknowledgments Our appreciation goes to the high school students, their headmistress Suor Anna Maria Rossetti and the teachers Clelia Tonini and Mirna Bontempi. We thank Dr. Donata Castelli (Marketing and Communication, AO “G. Salvini”, Garbagnate M.) for helping with the data analysis and J.D. Baggott for editing.

Conflict of interest The authors certify that there is no current or potential conflict of interest in relation to this article.

References

- Zwart JA, Dyb G, Dolmen TL, Stovner LJ, Sand T (2004) The prevalence of migraine and tension-type headaches among adolescents in Norway. The Nord-Trøndelag Health Study (HeadHUNT-Youth) a large population-based epidemiological study. *Cephalalgia* 24:373–379
- Laurell K, Larsson B, Eeg-Olofsson O (2004) Prevalence of headache in Swedish schoolchildren, with a focus on tension-type headache. *Cephalalgia* 24:380–388
- Fendrich K, Vennemann M, Pfaffenrath V et al (2007) Headache prevalence among adolescents—the German DMKG headache study. *Cephalalgia* 27:347–354
- Kroner-Herwig B, Heinrich M, Morris L (2007) Headache in German children and adolescents: a population-based epidemiological study. *Cephalalgia* 27:519–527
- Sakai F, Igarashi H (1997) Prevalence of migraine in Japan: a nationwide survey. *Cephalalgia* 17:15–22
- Stovner LJ, Zwart JA, Hagen K, Terwindt GM, Pascual J (2006) Epidemiology of headache in Europe. *Eur J Neurol* 13: 333–345
- Roth-Isigkeit A, Thyen U, Stoven H, Schwarzenberger J, Schmucker P (2005) Pain among children and adolescents: restrictions in daily living and triggering factors. *Pediatrics* 115:152–162
- Milde-Busch A, Heinrich S, Thomas S, Kuhnlein A, Radon K, Straube A, Bayer O, von Kries R (2010) Quality of life in adolescents with headache: results from a population-based survey. *Cephalalgia* 30:713–721
- Lenzi M, Vieno A, De Vogli R, Sentinello M, Ottava V, Baska T, Griebler R, Gobina I, de Matos MG (2012) Perceived teacher unfairness and headache in adolescents: a cross-national comparison. *Int J Publ Health* (in press)
- Larsson B, Fichtel A (2012) Headache prevalence and characteristics among school children as assessed by prospective paper diary. *J Headache Pain* 13:129–136
- Ando N, Fujimoto S, Ishikawa T et al (2007) Prevalence and features of migraine in Japanese junior high school students aged 12–15y. *Brain Dev* 482–485
- Unlap A, Dirik E, Kurul S (2007) Prevalence and clinical findings of migraine and tension-type headache in adolescents. *Pediatr Int* 49:943–949
- Hjern A, Alfvén G, Ostberg V (2008) School stressors, psychological complaints and psychosomatic pain. *Acta Paediatr* 97:112–117
- Ofovwé GE, Ofili AN (2010) Prevalence and impact of headache and migraine among secondary school students in Nigeria. *Headache* 50:1570–1575
- Fuh JL, Wang SJ, Lu SR, Liao YC, Chen SP, Yang CY (2010) Headache disability among adolescents: a student population-based study. *Headache* 50(2):210–218
- Maizels M, Saenz V, Wirjo J (2003) Impact of a group-based model of disease management for headache. *Headache* 43: 621–627
- D’Amico D, Solari A, Usai S, Santoro P, Bernardoni P, Frediani F, De Marco R, Massetto N, Bussone G, Progetto Cefalee Lombardia Group (2006) Improvement in quality of life and activity limitations in migraine patients after prophylaxis. A prospective longitudinal multicentre study. *Cephalalgia* 26(6): 691–696