

P223**Awareness of migraine in Neo-Latin countries: a study in 12 headache centers over 7 countries**

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The Journal of Headache and Pain 2017, 18(Suppl 1):P223

Objectives

To assess the awareness of migraine (M) and previous diagnostic and therapeutic paths in naïf migraineurs visited by headache specialists in several neo-Latin countries.

Methods

This is a multicentre study was conducted in parallel in 12 headache centers located over 7 neo-Latin speaking countries and coordinated by Mondino Institute, Pavia, Italy. Each center recruited up to 100 consecutive M patients aged 18 to 75 years who had been referred for a first visit. Patients answered questions about the type of headache they thought to suffer from, previous diagnosis received and previous visits/investigations/treatments for M.

Results

1161 patients were enrolled. 326 patients (28%) knew that they suffered from M, while 72% patients did not. 64% of patients simply called their M "headache". Other common names were cervical pain (4%, mostly in Italy), tension-type headache (3%, mostly in Mexico, Chile and Uruguay), sinusitis (1%). After multivariate analysis factors associated with the awareness of M were 6 (Table 1).

Only variables which reached a statistical significance ($p < 0.05$) after multivariate analysis were reported.

Mexico had the highest rate of M awareness (51%) followed by Chile (39%), Argentina (34%), Brazil (30%), Italy (25%), Moldova (17%) and Uruguay (12%). All our patients had previously visited by a GP for M, but only 8% of them diagnosed it as M. The majority of patients (80%) has been visited by at least one specialist for their M, but only 35% of them formulated the correct diagnosis.

High rates of M diagnosis were observed in Moldova (53%), Argentina (68%) and Uruguay (52%), but a minority of patients in these countries was aware to suffer from M: 17%, 34% and 11% respectively. 50% of patients were prescribed a X-ray and/or CT and/or MRI of the cervical spine. 76% of patients underwent to imaging of brain and/or cervical spine that exposed them to radiation. 28% of patients had previously received a symptomatic migraine specific medication and 29% had received at least one M preventative medication.

Conclusion

Although M is the 3rd most common pathology worldwide and the 7th for disability, there is poor awareness of it among patients even after consultation with physician(s). These findings speak in favour of the importance of educating doctors and patients in the field of M in order to reduce its burden worldwide.

Acknowledgment

This work was developed by the Italian Linguistic Group of IHS and supported by Mondino Institute (grant of the Italian Ministry of Health RC 2013-2015).

Disclosure of Interest

None Declared.

Table 1 (abstract P223). Association between sociodemographical and clinical factors and awareness of migraine

	Sign	OR (95% CI)
High educational level	<0.001	1.97 (1.43-2.78)
Number of family members with migraine	0.005	1.17 (1.04-1.31)
Duration of attacks (hours)	0.001	0.98 (0.97-0.99)
Throbbing pain	0.005	2.02 (1.23-3.31)
Localization of pain: lateral	0.043	1.36 (1.01-1.83)
Vomiting	0.018	1.43 (1.06-1.93)

P224**Guideline adherence reduces neuroimaging utilization in Headache Center**

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The Journal of Headache and Pain 2017, 18(Suppl 1):P224

Background

Headache neuroimaging (NI) is commonly ordered even in absence of red flags and despite guideline recommendations. Enhancing the continuity of care was suggested as one potential way to reduce unnecessary NI [1]. The aim of the study was to evaluate if a different headache care organization and strict observation of guidelines may optimize headache NI practices.

Materials and methods

Integration between a general practitioner (GP), specialized in internal medicine, particularly expert in the headache management due to previous long lasting experience in a Headache Center (HC), and neurologists in the conduction of a HC was experimented for the first time in Italy in the Health Authority 11 of Empoli, covering about 240000 residents. The aim was to optimize the headache care through a strict collaboration between GPs and HC for better continuity of care. Only non-acute referrals are seen by HC specialists and the waiting time for appointment was less than 3 months. Headache specialists had access to health information of previous specialist visits, hospital recovery or emergency department access, contained in the electronic records of Health Authority. The aim of this study was to evaluate the NI investigation rate in patients referred for the first time in 2011-2013 years to HC. To reduce the unnecessary and overused NI, the GP, basing on clinical history and first level neurological examination, could only order magnetic resonance imaging (MRI) or computed tomography (CT) in presence of red flags considered in the principal guidelines, which were specified in the consultation record. NI for reassurance or patient request was not ordered. The rate of NI request was compared to that of the two consultant neurologists of HC (χ^2 test).

Results

There were large differences in the proportion of headache patients imaged by the consultants. Neurologist visits were associated with increased NI (26.3% vs. 10.9%, $p < 0.001$) (Table 1). In patients visited by GP, considering only the 676 (62%) subjects whom had never undergone NI, the percentage was 14.6.

Conclusions

This study highlights that, following guideline recommendations, the rate of NI utilization was largely inferior to that of neurologist consultation in HC, and also to that previously reported in various clinical settings [2]. In this study the correlation of reasons for investigation with neuroradiological findings shows significant abnormalities possibly related to headache in only 2.2% [2], in agreement with the literature data. Therefore, optimizing headache NI practices should be a major priority. It would be necessary a more exact definition of which changes in headache pattern, and their onset interval, require investigation.

significant differences were documented in gender distribution, mean ESS and rMEQ scores between episodic and chronic migraineurs. A correlation analysis (Rho coefficient of Spearman) carried out in the total sample of 150 migraineurs, documented a statistically significant, positive correlation between monthly frequency of migraine attacks and patients' age ($p < 0.001$), disease duration ($p < 0.001$), BMI score (Rho 0.177, $p = 0.049$), MIDAS score ($p < 0.001$), GAD-7 score ($p = 0.019$), PHQ-9 score ($p < 0.001$), PSQI score ($p = 0.006$) and FSS score ($p < 0.001$).

Discussion: Data from the present report seem to expand the concept of migraine as a continuum or spectrum, with higher BMI score and greater occurrence of anxiety-depressive symptoms, poor sleep quality and fatigue in chronic migraine patients compared to episodic migraineurs; further investigation is certainly necessary in order to better define the biological basis and mechanisms associated with migraine transformation from episodic to chronic pattern.

Written informed consent to publish was obtained from the patient(s).

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P023. Reasons for headache investigation and findings in an experimental headache center

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The Journal of Headache and Pain 2015, 16(Suppl 1):A189

Background: Warning symptoms or "red flags" are useful in targeting which patients with headache require investigation. Many red flags, even with normal neurological examination, are the cause of neuroimaging (CT or MRI) overutilization, in addition to patient reassurance. Optimizing headache neuroimaging practices should be a major priority. The aim of our study was to evaluate the investigation rate in patients referred for the first time in the period from 2011 to 2013 to our Headache Center (HC) conducted by a general practitioner particularly an expert in headache management, and to correlate the reasons of investigation with neuroradiological findings.

Results: A total of 118 (10.9%) of 1,078 new patients (802 females, 276 males; mean age 41±15; range 7-90), 85% suffering from episodic or chronic migraine, were referred for neuroimaging: 107 MRI (20 MR angiography), 11 CT. Considering only the 676 subjects whom had never undergone neuroimaging, the percentage was 14.6. Sixteen out of 118 patients were investigated in the past (11 CT, 5 MRI).

The reasons for headache investigation were: recent change in characteristics (6), significant increased frequency from 1-12 months (55, in 21 daily headaches), recent (1-12 months) onset (25, in 14 daily headaches *ab initio* from 1-6 months), recent onset in patients over 40 years (19), abnormal neurological signs (12): alteration of Mingazzini or Romberg test, precipitated by exertion (8), atypical aura (8), first-degree relatives died from cerebral aneurism (4), memory deficit (4), migraine associated vertigo (7), paresthesia not typical of aura (7), nighttime onset (3), atypical cluster headache (1), trigeminal neuralgia first branch (1), recent thunderclap headache (1).

Twenty-two patients currently in good health had not performed the requested neuroimaging. Information regarding 9 residents outside the region was unavailable. The analysis of neuroimaging findings (82 MRI, 5 CT) therefore concerned 87 patients aged 14-78 years, 53 of them with migraine without aura and 11 with migraine with aura.

Insignificant abnormalities were found in 33 patients: paranasal sinus thickening (13), septum pellucidum cyst (2), pineal cyst (3), arachnoid cyst (3), circle of Willis variants (6), signs of chronic cerebral ischemia (5), doubtful small subependymoma (1). Significant abnormalities possibly related to headache were found in two patients (2.2%) with cavernous angioma and intracranial hypotension.

Conclusions: The rate of headache patients investigated through neuroimaging was largely inferior to that previously reported in various clinical settings [1-3]. We suggest that a major study should evaluate if some red flags such as changes in headache characteristics but with normal neurological examination require investigation.

Written informed consent to publish was obtained from the patient(s).

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P011. The use of electronic pain diaries via telemedicine for managing chronic pain

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The Journal of Headache and Pain 2015, 16(Suppl 1):A190

Chronic pain is defined as pain that persists for longer than 3 to 6 months with persistence beyond "normal healing time" of an injury [1]. Pain is a subjective experience, which is difficult to accurately measure. Current approaches to evaluate chronic pain suffer from methodological problems. A real-time data capture approach using electronic diaries has been proposed as a new standard for pain measurement. The formulation of a correct diagnosis and the delivery of optimal care depend on accurate communication between patients and clinicians regarding patients' symptoms that necessitate reliance on memory, which is often imprecise. Data suggest that remote clinical assessments via telemedicine can improve clinical monitoring, diagnosis and care, and facilitate research participation. Our aim was to evaluate the feasibility and the reliability of using a handheld electronic communication device via telemedicine as a method for assessing and monitoring pain and discomfort in chronic pain patients.

In collaboration with TERIN, an Italian ICT (information and communication technology) consortium, we have developed an easy-to-use smartphone-based electronic pain diary (IHCS AID Diary) which enables assessment of clinical features of pain over time. Data are transferred via internet to the central server that provides the web interface to access the system (IHCS - Innovative Health Care System), to which we can connect to explore processed data and to interact with it. Fifty-three headache patients were selected. The subject's task, during pain, was to indicate the location of pain (on a bodymap), the intensity of pain (on a visual analogue scale - VAS), the state of discomfort (on the Wong-Baker FACES pain rating scale), other pain associated manifestations and therapeutic response by using the AID Diary. All subjects also completed paper pain diaries.

Preliminary results showed that 27 patients (51%) were compliant in using the AID Diary during pain, 18 patients (34%) had issues with application malfunctioning and transferring data and 8 patients (15%) were noncompliant. Paper pain diaries returned by the group of compliant patients contained more errors and omissions compared to the AID Diary.

The potential use of a smartphone-based electronic pain diary via telemedicine seems to be a feasible and reliable method for conducting remote assessments of clinical features of pain in chronic pain patients over time, thus improving clinical monitoring, differential diagnosis and treatment of pain.

Written informed consent to publish was obtained from the patient(s).

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Table 1 (abstract P224). See text for description

	Patients (n)	Mean age $\pm$ SD (range)	♀	♂	RMI/CT (n)	Imaged (%)
Neurologists	520	41.6 $\pm$ 18 (4-91)	75.2%	24.8%	127/10	26.3
GP	1078	41.0 $\pm$ 15 (4-90)	74.4%	25.6%	107/11	10.9

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Availability of effective evidence-based symptomatic treatments for cluster headache in the EU countries: A survey of the European Headache Alliance and European Headache Federation

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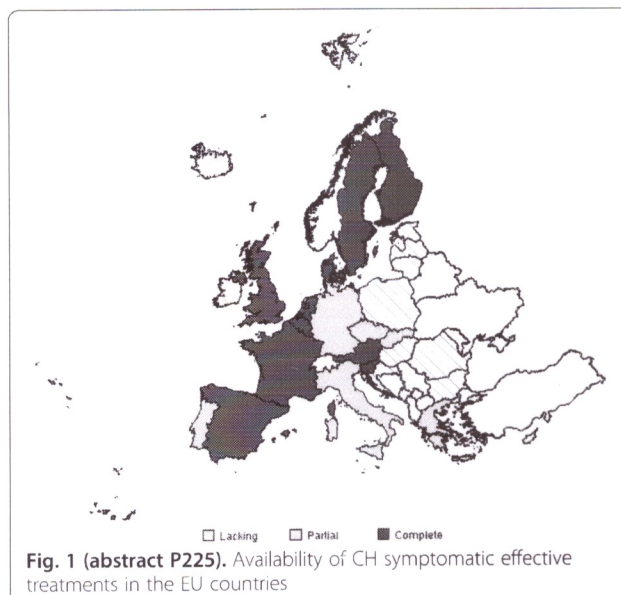
Background: Treating cluster headache can be tricky because the pain becomes extremely severe very quickly and only few evidence based treatments can work. Recent data from IHS suggest that oxygen is not universally reimbursed or available for CH patients. The aim of this study was to assess the reimbursement option and accessibility of 3 effective medicines for CH (sumatriptan s.c, oxygen zolmitriptan spray) across EU

Materials and Methods: A brief survey investigating the availability of symptomatic treatments for CH was send on e-mail on January 2017 to at least one headache specialist for every single country of the EU. For a complimentary point of view. In the countries where active CH patients' associations exist the survey was completed by CH expert patients.

Results: The questionnaire was completed by 26 headache specialists (93% of the EU countries representing 99.75% of the European population) and 10 CH expert patients (representing 72% of the European population). The answers provided by the headache specialists and expert patients were coherent in every country. Availability of ETs was defined as: a) complete: both oxygen and sumatriptan s.c fully reimbursable and accessible; b) restricted: partial reimbursment or inaccessibility of one between Oxy and Suma s.c; c) lacking: both oxygen and sumatriptan s.c not reimbursable and not accessible Oxygen was reimbursable for 62.68% of the CH population. Oxygen device was reimbursable for 49% of the CH population. Sumatriptan s.c. was reimbursable for 66% and accessible without restrictions for 45% of the CH population. Zolmitriptan spray was reimbursable for 23.7% and accessible without restrictions for 30.9% of the CH population. Availability of CH effective treatments resulted complete, restricted or lacking for 47%, 35.2% and 18% respectively of the CH European patients (Fig. 1)

Conclusion: Based on this survey only 47% of the EU population had an unrestricted access to CH effective treatments with unacceptable inequalities between eastern countries and the rest of Europe. Headache societies and patients'associations should pressure European and national health authorities to improve the availability of effective symptomatic treatments for CH

Consent for publication: The authors declare that written informed consent was obtained for publication.

**P226**
The evaluation of short-latency afferent inhibition discloses abnormal fluctuations of cholinergic transmission during the migraine cycle

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The Journal of Headache and Pain 2017, **18**(Suppl 1):P226

Background

Short-latency afferent inhibition (SAI) is a form of inhibition related to the cholinergic activity in the cerebral cortex. It consists in a galvanic stimulation of the median nerve at the wrist that can suppress motor cortex excitability, as tested by transcranial magnetic stimulation (TMS), when given at a short interstimulus interval (ISI) between 18 and 21 ms. SAI is considered an in-vivo way to study the sensorimotor integration mechanisms. SAI response is influenced by the excitatory effect of acetylcholinergic thalamocortical afferents on the inhibitory GABAergic (mostly GABAa) cortical networks.

Materials and methods

We recruited 30 migraine without aura patients (16 between [MO] and 14 during [MI] attacks), and we compared them to a group of 16 healthy volunteers (HV). We first recorded somatosensory evoked potentials N20 latency and N20-P25 peak-to-peak amplitude at the contralateral parietal area. Afterward, SAI was recorded in all study's participants as follows: after a conditioning single pulse delivered on the median nerve at the wrist, a TMS pulse was delivered with ISIs derived from the latency of N20 plus 2 to 8 ms in steps of 2ms and in random order. Five stimuli were delivered at each ISI. We calculated the SAI slope of the linear regression between the unconditioned motor evoked potential (MEP) amplitude and the 4-conditioned MEPs as a measure of cortical excitability.

Results

Compared with HV, SAI was significantly reduced in MO, but enhanced in MI patients (slope HV= +11.2, MO= +242, MI= -129). In both HV and MO groups, but not in MI, the SAI slope positively correlated with the SSEP N20-P25.