



## Knowledge of the medical resident about diagnosis and treatment of patients with headache

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### Abstract

#### Introduction

Considering the high prevalence of headache, it is necessary a study about the effectiveness of the care of patients with headache by medical resident in Emergency Care Units (EDU) and medical outpatient clinics.

#### Objective

The objective of this study was to analyze the effectiveness of care in EDUs, outpatient clinics and medical wards and the management of patients with headache complaints.

#### Method

The study was observational descriptive (cross-sectional cohort) through the application of an online questionnaire answered by the medical residents.

#### Results

There were 115 residents who answered the survey. In the group of residents who see patients with headache (n=95) the number of visits was 4.87 per week. The resident's idea is that headaches are symptoms of an underlying disease in 49.5% of them. On the question about feeling able to differentiate primary from secondary headaches, 50% of the residents said yes. On the question, "Is Migraine the same as Headache?" 6.1% answered yes. On the question, "Would you use morphine derivatives to treat headache?" 19.1% of the residents answered that they would. On the question about having knowledge about the harms of using morphine derivatives in headache, 60% answered that they did not have in-depth knowledge or that they have no knowledge. In this sample of residents, 74/115 (65%) suffer from headache. Only 36/115 (31%) of the residents sought care because of the headache. Of the residents, 3/115 (2.6%) have chronic daily headache. In the question about knowing what is "chronic daily headache" and from medication overuse, about 35% do not know or did not delve into the concept.

#### Conclusion

We conclude that there is a lack of teaching about types of headaches, criteria for diagnosis and treatment. Urgent modifications should be made in the medical course to enable newly graduated doctors to diagnose and treat patients with headache.

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## Introduction

There are different types of headaches that can be localized or diffuse, acute, or chronic, associated or not with other symptoms and have numerous causes.<sup>1</sup>

They are classified according to: (1) the etiology (primary when they occur without a demonstrable etiology by clinical examinations and secondary when a specific organic cause is identified), (2) mode of onset and evolution (explosive headaches, acute, and chronic) and (3) criteria of the International Headache Society which divided them into groups (migraine, tension-type headache, cluster headache and hemicrania continua, other primary headache disorders, and miscellaneous secondary headache disorders (associated or not associated with structural lesion)).<sup>2</sup>

About 50% of the general population has headache, and more than 90% report at least one episode of headache during their lives. Thus, it is very important to study the conduct and treatment of a disease that has great economic impacts and on the quality of life of the patient.<sup>2</sup> In addition, an overload is observed in emergency units and outpatient clinics due to inadequate initial care of a patient suffering from a headache. Considering this high prevalence, a study about the efficacy of headache care by residents present in Emergency Care Units (EDU) and outpatient clinics is necessary.<sup>3,4</sup> There is great concern in determining secondary etiologies, which although occurring in only 1-2% of cases in emergency services, they need to be diagnosed and treated.<sup>4,6</sup> It is also necessary to change the culture of indiscriminate use of morphine derivatives for the treatment of primary headaches and other types of pain.<sup>4,6</sup>

Thus, the objective of this study was to carry out an epidemiological survey of the treatment of patients with headache by residents from the 1<sup>st</sup> to the 5<sup>th</sup> year in hospitals and emergency units, comparing and analyzing whether the conduct of resident doctors is in line with the "National protocol for the diagnosis and management of headache in emergency units in Brazil"<sup>4</sup>, established by the Brazilian Academy of Neurology, Scientific Department of Headache of the Brazilian Society of Headache. Moreover, the estimate of the resolvability of headache cases in the emergency room was also assessed.

## Methods

This is a descriptive observational study (cross-sectional cohort) with application of a semi-structured online

questionnaire to medical residents who are on general care. A group of six medical students from *Faculdade de Medicina de Catanduva* sent the questionnaire by e-mail or by WhatsApp to residents in the city of Catanduva and region, as well as to several university hospitals distributed throughout Brazil.

All participants received the informed consent form and authorized their participation in the research. This study was approved by the ethics committee of the *Faculdade de Medicina de Catanduva* with the number 44857315.5.0000.5430.

## Results

A total of 115 residents responded to the survey. The age of the participants ranged from 23 to 35 years of age with a mean age of 28 years (Table 1). The marital status of the residents is shown in Table 2. 57% of the residents graduated between 2016 and 2018 (Table 3).

**Table 1.** Age distribution of the 115 medical residents who participated in the study

Age (years)	n	%
23 to 25	23	20
26 to 30	79	69
31 to 35	13	11
Total	115	

**Table 2.** Marital status of the 115 residents who participated in the study

Civil Status	n	%
Married, in a stable union	17	15
Divorced or separated	1	1
Single	97	84
Total	115	

**Table 3.** The graduation year of the 115 residents.

Graduation year	n	%
2013 to 2015	8	7
2016 to 2018	65	57
2019 to 2021	42	37
Total	115	

Table 4 shows the distribution by specialty of the 115 residents. The number of visits to headache patients per week by residents is shown in Table 5. Type of headache complaint as to the intensity reported is shown in Table 6. Twenty residents reported that they do not assist patients with headache. In the group of residents who do assist



patients with headache (n=95) the number of visits was 4.87 per week. The resident's idea is that headaches are symptoms of an underlying disease in 49.5% (Table 7).

**Table 4.** Specialties of the 115 residents who participated in the study

Specialty	n	%
Anesthesiology	4	3.5
Plastic Surgery	2	1.7
Clinical Surgery	10	8.7
Clinical Medicine	36	31.3
Pain	1	0.9
Clinical specialties such as rheumatology, neurology, pneumology, endocrinology, dermatology, and others	11	9.6
Gynecology-Obstetrics	10	8.7
Family Medicine	1	0.9
Physical Medicine and Rehabilitation	3	2.6
Neurosurgery	1	0.9
Neurology	2	1.7
Pediatric Oncology	1	0.9
Orthopedics and Traumatology	5	4.4
Pediatrics	18	15.7
Psychiatry	4	3.5
Radiology	5	4.4
ICU/intensive care	1	0.9
Total	115	

**Table 5.** The number of headache patients assisted per week by the 115 residents

Weekly visits	n	%
>16	4	3.5
1-2	26	22.6
13-15	4	3.5
3-5	45	39.1
6-8	12	10.4
9-12	4	3.5
None or did not actively participate in this appointment	20	17.4

**Table 6.** Type of headache complaint as to the intensity reported

Pain intensity reported	N	%
Intense	3	2.6
Mild	8	7.0
Mild/moderate	44	38.3
Moderate	16	13.9
Moderate/intense	27	23.5
Don't know	17	14.8
Total	115	

**Table 7.** Resident's diagnostic impression regarding the patient's headache

Resident's diagnostic impression regarding the patient's headache	n	%
Symptom of an underlying neurological or systemic disease	57	49.6
The person's main symptom	42	36.5
I don't ask about headache where I work (and the patient comes for another reason and doesn't complain)	15	13.0
I do not assist patients with headaches	1	0.9
Total	115	100

On the question about feeling able to differentiate primary headaches from secondary headaches, 50% of the residents said yes and 37.4% said they have some notion but have not delved into it and 8.7% do not know how to differentiate the type of headache (Table 8). On the question, "Is Migraine the same as Headache?" 6.1% answered yes (Table 9). On the question, "Would you use morphine derivatives to treat headache?", 19.1% answered that they would (Table 10). In this sample of residents, 74/115 (65%) suffer from headache.

**Table 8.** Question if the resident believes he/she can differentiate primary from secondary headaches

Ability to differentiate between primary and secondary headaches	n	%
No	10	8.7
Never thought about it	4	3.5
Yes	58	50.4
I have some notion but did not delve into it	43	37.4
Total	115	

**Table 9.** About the question: Is Migraine the same as Headache?

Answer	n	%
No	108	93.9
Yes	7	6.1
Total	115	

**Table 10.** On the question: "Would you use morphine derivatives to treat headache?"

Answer	n	%
Child avoided	1	0.9
Depends on the clinical condition that motivates the active search for the emergency service	2	1.7
No	90	78.3
Yes	22	19.1
Total	115	

In the question regarding knowledge about the harms of using morphine derivatives in headache, 60% answered that they did not have in-depth knowledge or that they have no knowledge (Table 11). In the question about



knowing what is "chronic daily headache" and medication overuse, about 35% did not know or did not delve into the concept.

Only 36/115 (31%) of the residents sought care because of headache. However, 35% reported not having headache, but when answering the frequency of their pain, some who had headache once in their lives or 2/year (i.e., rare), denied it because they had very low frequency headache. This changes our casuistic from 64% of residents presenting with headache to 98% who have had at least one episode in their lifetime (23% report how having headache is rare). The frequency of headache is shown in Table 13. Of the residents 3/115 (2.6%) have chronic daily headache.

**Table 11.** About the resident having knowledge of possible harms of prescribing morphine derivatives in the treatment of a patient with headache

Are you aware of the harms of using morphine derivatives in headache	n	%
No	27	23.5
Yes	46	40.0
I have some notion but did not delve into the subject	42	36.5
Total	115	

**Table 12.** Answer regarding whether the resident knows about chronic daily headache and analgesic overuse headache

Are you aware of chronic daily headache and analgesic overuse headache	n	%
No	16	13.9
Yes	74	64.4
I have some notion but did not delve into the subject	25	21.7
Total	115	

**Table 13.** Frequency of headache in the 115 residents

Frequency of headache	n	%
1 to 2/month	2	1.7
1/month	4	3.5
up to 4/month	57	49.6
4 to 8/month	18	15.7
9 to 14/month	2	1.7
rare	27	23.5
No	2	1.7
>15 days/month	3	2.6
Total	115	

## Discussion

The prevalence of headache in the general population is very high, with rates exceeding 90% throughout life.<sup>7,11</sup> Among medical students and other health professionals it is also high.<sup>12</sup> Even considering children and adolescents,

the prevalence of headache is worrying.<sup>13-15</sup> Nevertheless, the number of hours of headache-taught subjects is very low, alerting that modifications in the teaching syllabus in medical schools should be expanded regarding the subject of headache disorders. This justifies the little knowledge many residents have about the use of morphine derivatives in the treatment of patients with headache, which is contraindicated.<sup>16-18</sup> This is a wrong practice that is still done in many countries.<sup>18</sup>

Concepts such as defining chronic daily headache and analgesic overuse headache were not known by all residents. The participation of undergraduate medical students in academic leagues has decreased this teaching deficit. Few residents thought that there was no difference between migraine and headache, showing the seriousness of the teaching gap, especially because these same residents are treating patients with headache. Teaching the principles of subspecialty Headache Medicine is a growing and still underappreciated concern.<sup>19,20</sup>

Many of these residents suffered from headache and about one third had already sought emergency care for headache, showing the seriousness of the disease even among the newly trained physicians.

## Conclusion

We conclude that there is a lack of teaching about types of headaches, criteria for diagnosis and treatment. Urgent modifications must be made in the medical course to enable newly graduated doctors to diagnose and treat patients with headache.

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