

Profile and generalist physician knowledge about neurology in emergency department: headache management

Perfil e conhecimento em neurologia do médico generalista no setor de emergência: abordagem de cefaleias

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ABSTRACT

Background: Neurological complaints are frequent in emergency department routine. Among them, headache is a common disorder, which requires a certain degree of knowledge on Neurology because of its extensive differential diagnosis. **Objective:** To assess general practice physicians' level of knowledge about headaches, in addition to outlining the profile of professionals who attend in emergency departments, as well as the profile of their respective workplaces in terms of neurological approach. **Methods:** We included in evaluation physicians who attend emergency care units for adult public as general practitioners. A questionnaire was applied with questions regarding participants' general knowledge on headache, neurological approach, demographic profile, and workplace profile. **Results:** 159 physicians answered the questionnaire. The professionals' profile corresponded to recently graduated individuals (mean of 6.31 years). Knowledge about headache management was regular. Those who do not have any specialization or are not majoring a specialization were statistically significantly more confident in neurological patients care ($p=0.006$). Only 18.24% reported access to Magnetic Resonance Imaging and 35.85% had no access to any type of neuroimaging. **Conclusions:** General practice physicians often do not feel confident when performing neurological exams, demonstrating low knowledge about the topic. The profile of professionals working in these departments is predominantly of newly graduates, which may affect in some way on care quality. There was also a lack of structure for adequate care.

Keywords: headache; knowledge; general practitioners; neurology; emergency medical services.

RESUMO








Introdução: Queixas neurológicas são frequentes na rotina de setores de emergência. Entre elas, a cefaleia é um distúrbio comum, que por seu diagnóstico diferencial amplo, exige certo grau de conhecimento em Neurologia. **Objetivo:** Avaliar o nível de conhecimento em cefaleias de médicos generalistas, além de traçar o perfil dos profissionais que atendem em setores de emergência nesta função, assim como de seus respectivos locais de trabalho em termos de abordagem neurológica. **Métodos:** Foram incluídos na avaliação médicos que atendem em unidades de pronto-atendimento para público adulto, na função de generalista. Um questionário foi aplicado com perguntas referentes ao conhecimento geral dos participantes sobre cefaleia, abordagem neurológica, perfil demográfico e perfil do local de trabalho. **Resultados:** 159 médicos responderam ao questionário. O perfil dos profissionais presentes na amostra correspondeu a indivíduos graduados recentemente (média de 6,31 anos). O conhecimento a respeito da abordagem de cefaleias foi regular. Aqueles que não possuem nenhuma especialização, nem estão cursando uma residência, se mostraram, de forma estatisticamente significativa, mais seguros no atendimento de pacientes neurológicos ($p=0,006$). Apenas 18,24% referiram ter acesso à Ressonância Magnética e 35,85% não tiveram acesso a nenhum tipo de neuroimagem. **Conclusão:** Médicos generalistas frequentemente não sentem segurança ao realizar atendimento e exame neurológicos, demonstrando pouco conhecimento acerca do assunto. O perfil dos profissionais que atuam nesses setores é predominantemente de recém graduados, o que pode impactar de alguma forma na qualidade de atendimento. Verificou-se também falta de estrutura para um atendimento adequado.

Palavras-chave: cefaleia; conhecimento; clínicos gerais; neurologia; serviços médicos de emergência.

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Neurological complaints are frequent in general practice physician's routine, especially those who work in emergency departments. Among them, headache is a very frequent disorder¹, which requires a certain degree of knowledge on Neurology because of its extensive differential diagnosis. With high prevalence, it is estimated that each worker loses at least one workday per year due to incapacitating headache². Parallel to this, this symptom corresponds, in the United States, to the fifth cause of urgency and second most common neurological complaint admitted in this department³. Adequate diagnoses and treatments make possible to reduce this impact on population quality of life⁴.

Classification in primary and secondary headache is important in initial evaluation. If primary headache is confirmed, prophylaxis should be improved in order to prevent future visits in emergency care units, while causes of secondary headache are potential emergencies, requiring prompt diagnosis and treatment. However, evidence indicates that there are divergences in diagnosis between generalists and neurologists³. Teaching about the topic in academia is unsatisfactory⁴, besides there is a lack of training regarding headache to graduated professionals. Previous findings have shown that patients with headache referral to neurologist often occurs without necessity, leading to resources wasting⁵.

Thus, it is therefore necessary to evaluate and create mechanisms to increase generalist's knowledge about headache in order to avoid undiagnosed cases, emphasizing the need for practice of continued medical education⁶. The objective of this study was to assess general practice physicians' level of knowledge about headaches, in addition to outline the profile of professionals who attend in emergency departments, as well as the profile of their respective workplaces in terms of neurological approach.

METHODS

The present study started after local Research Ethics Committee approval — CAAE 75384417.4.0000.5227. All evaluated individuals gave their permission to participate through signing an informed consent.

Participants

We included physicians who attend adult public emergency care units as general practitioners. Exclusion criteria were professionals who have specialization, residency or qualification as specialist in Neurology or Neurosurgery, or who are majoring these specializations. Professionals who exclusively attend pediatric patients were also excluded from evaluation.

Testing application

A cross-sectional study was carried out through questionnaire application with questions regarding general knowledge about headache, neurological management, and emergency

units' general practitioners profile. The questionnaire was structured in four parts: informed consent, followed by demographic profile analysis and by multiple-choice questions subdivided in two stages. Initial 10 questions are about individual's perceptions regarding their knowledge and performance and then six practical questions about headache management in Emergency Care. Questions were elaborated by specialists. Regarding questions about headache clinical management, adequacy of responses was analyzed according to the National Protocol for Diagnosis and Management of Headache in Brazil Emergency Units, published by Headache Scientific Department of Brazilian Headache Society⁷. Questions used in questionnaire are presented in Appendix 1, available at www.limuneuro.com/questionsheadache. A pilot study was initially conducted with 10 physicians to evaluate applicability and test understanding. Questionnaires were applied in participants' native language (Brazilian Portuguese).

Questionnaires were applied online through Google Forms' platform. Participants were recruited after contact with Regional Council of Medicine (CRM-PR) Department, which disclosed the research for doctors with an active membership to CRM-PR. Responses were collected for 60 days.

Statistical analysis

Responses frequencies were expressed as percentages, while continuous variables were expressed as means. Categorical variables were analyzed by chi-square test, while comparison of continuous variables was performed by Mann Whitney and ANOVA tests, when applicable. Statistical significance value was set at 0.05.

RESULTS

Profile of the doctor who works in emergency care

One hundred and fifty-nine physicians answered the questionnaire. Participants mean age was 31.57 ± 7.47 years, with a female predominance (42.12% were men).

Average time since graduation is 6.31 ± 7.25 years, of which 32.70% are majoring residency or specialization and 40.25% are already specialists. Among the latter, the most frequent formations were Internal Medicine (13.83%), General Surgery, and Orthopedics (both corresponding to 6.92%). These professionals have worked in emergency department an average of 4.83 ± 5.52 years.

Participants' self-judgment

Participants were asked about their perceptions about own neurological skills. Responses distribution can be verified in Table 1.

When questioned about how often they feel need for Neurology specialist help, 37.74% of participants reported needing help often or frequently. Both time since graduation and time of work in emergency units did not correlate

in a statistically significant way with perception of greater confidence in neurological care by participating physicians ($p=0.92$ and $p=0.60$, respectively). However, those who do not have any specialization or are not majoring a residency were statistically significantly more confident in neurological patients care ($p=0.006$). Thirteen percent of interviewees affirmed never performing neurological physical examination, even in patients with suggestive nervous system involvement complaints.

Structure for neurological care

Participants were also asked about emergency units' structure. In 74.84% of them, there is no Neurologist on duty.

Table 1. Participant's judgment regarding their own knowledge.

Questions and options	Answers
1) How do you judge your knowledge in Neurology?	
A Excellent	1.3%
B Good	38.4%
C Regular	54.7%
D Bad	5.6%
2) How do you judge Neurology classes content in your college?	
A Excellent	6.3%
B Good	46.5%
C Regular	36.5%
D Bad	10.7%
3) Do you feel confidence performing complete neurological physical examination?	
A Yes	23.9%
B No	20.8%
C Partially	55.3%
4) How do you judge your knowledge about Headaches treatment?	
A Excellent	7.6%
B Good	62.3%
C Regular	29.5%
D Bad	0.6%

When questioned about available materials for performing neurological physical examination, 49.06% reported having a reflex hammer, but only 15.72% had access to an indirect ophthalmoscope for suspected intracranial hypertension cases evaluation, while 47.17% reported having only a flashlight or have no material to assist neurological examination.

Regarding availability of imaging tests in units, 64.15% reported access to Computed Tomography, only 18.24% to Magnetic Resonance Imaging, and 35.85% did not have access to any type of neuroimaging.

Knowledge assessment

Of evaluated participants, only 31.45% knew the possibility of using chlorpromazine in a headache care context, while 63.52% reported prescribing routine opioids for migraine. Even when asked about medication, 32.70% of participants confused medications used for prophylaxis with abortive therapy.

Participants were also questioned about factors they considered as "red flags" to investigate secondary causes. Response distributions can be verified in Figure 1.

Still, when it comes to conduct evaluation, 16.98% of participants stated that they would perform lumbar puncture in patients with focal neurological signs prior to neuroimaging, 12.57% would have no restrictions before prescribing triptans for migraine with brainstem symptoms, and 25.53% did not know the possibility of migraine infarcts.

When questioned about management of chronic migraine with already known motor symptoms in all episodes, 62.26% stated that they would perform neuroimaging tests in all episodes, of which 75% would opt for Tomography as first choice.

DISCUSSION

Headache is a highly prevalent complaint in emergency units³, being important the presence of general

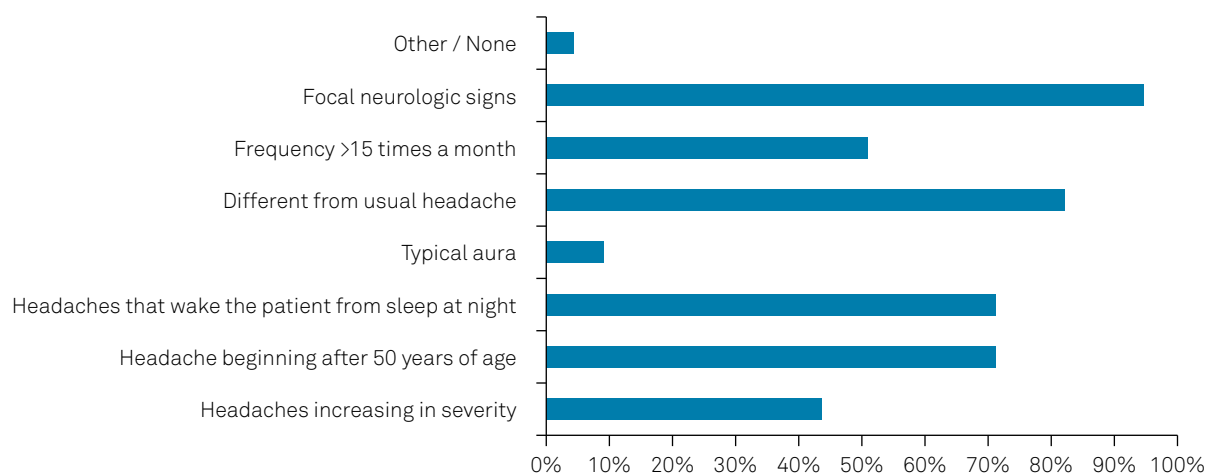


Figure 1. Answers for "red flags".

practitioners with good knowledge about cephalalgia management in this sector.

Evaluation of medical knowledge regarding headache is scarce in literature, with only few studies addressing this issue, but in different populations, with no focus on emergency care. However, demographic data presented in this study are similar to previous findings in terms of gender distribution, reflecting a process of medicine “feminization”⁸. However, an important finding was in relation to prevalence of recently graduates, who seem to be the most frequent professional profile in these sectors, and may reflect on provided service quality. Previous studies have shown that more than half of newly graduated physicians work in emergency care, majoring medical residency or not^{9,10}.

A possible justification for poor performance can be justified by lack of practice and clinical experience of newly graduated professionals. Previous studies have shown that this population is insecure when evaluating more complex clinical cases, which require specialized medical assistance¹¹. In contrast, in our study, both time of service and time since graduation did not significantly influence the confidence of professionals. A remarkable result is that those who do not have any specialization and are not majoring residency have shown to be more confident in neurological patients care. This may be due to a greater contact with emergencies by these professionals when compared to specialist physicians.

An important issue to be addressed when considering the training of general practitioners is the “neurophobia” by graduation students and physicians¹². Previous findings have shown that a large number of students do not feel confident when evaluating patients with neurological complaints, which are associated with “complex complaints”^{13,14}, and may reflect the care given by newly graduated professionals. In addition, the absence of Neurology professionals in several hospitals is a contributory factor to disservice of qualified care.

Neurological semiology is based on detailed anamnesis and execution of an improved physical examination¹⁵. Professionals’ lack of confidence regarding physical neurological examination, associated to lack of basic material to perform it, as evidenced by us, contributes to difficulty in performing accurate diagnoses. However, in addition to semiologic technique, an adequate care structure for medical assistance is essential, which seems to be in scarcity. Availability

of neuroimaging tests presents an uneven distribution¹⁶. Finally, regarding imaging tests availability, magnetic resonance imaging was configured as the least accessible equipment, influencing posterior fossa pathologies investigation.

Regarding neuroimaging, in addition to paucity of these complementary exams when necessary for diagnostic elucidation, it is also important to evaluate another topic: the unnecessary exams request due to lack of preparation and lack of physical examination, which is evidenced by our study. Inadequate imaging tests solicitation can, in addition to causing health system financial burden^{4,17}, bring harm to patients, with an increased risk of developing malignant tumors due to radiation exposure, in case of Computed Tomography¹⁸.

This study, however, has limitations. Physicians sampling is relatively small, and application form may generate a selection bias, since, possibly, those who are aware of their own difficulty in Neurology refuse to participate in test, with actual deficits of knowledge may be underestimated.

CONCLUSION

Although cases of headache are common in emergency room, most physicians do not feel confidence when performing neurological examination, showing lack of knowledge. Professionals’ profile who works in these departments is predominantly of recent graduates, which may affect in some way on quality of care. There was also a lack of hospitals structure for a complete care, whose precariousness extends from simple physical examination instruments to imaging exams. In this context, it emphasizes importance of adequate Neurology teaching and the need of specialists’ approved protocols for guidance. In addition, it is necessary to carry out periodic programs of continuing education, as well as to reinforce the hospitals’ structures to improve neurological patients care.

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APPENDIX 1. QUESTIONNAIRE (NATIVE LANGUAGE).

PARTE 1 – TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

PARTE 2 – PERFIL BIOPSIICOSOCIAL

PARTE 3 – CONHECIMENTO EM NEUROLOGIA E CEFALÉIAS

Instruções de preenchimento: assinalar com um X dentro dos parênteses a alternativa desejada para a resposta.

1) Como você julga seus conhecimentos em Neurologia? (assinale apenas 1 opção)

Excelentes Bons Regulares Ruins

2) Como você julga os conhecimentos em Neurologia ensinados pela sua faculdade? (assinale apenas 1 opção)

Excelentes Bons Regulares Ruins

3) Você sente segurança na realização do exame físico neurológico completo? (assinale apenas 1 opção)

Sim Não Parcialmente

4) No Pronto Atendimento em que trabalha, há um Neurologista de plantão? (assinale apenas 1 opção)

Sim Não

5) Com qual frequência você sente que necessitaria de ajuda de um especialista em Neurologia durante o seu plantão de Pronto Atendimento? (assinale apenas 1 opção)

Sempre Com frequência Raramente Nunca

6) Como você julga seus conhecimentos na abordagem de Cefaleias? (assinale apenas 1 opção)

Excelentes Bons Regulares Ruins

7) Quais materiais abaixo você costuma ter à mão para realização de exame físico neurológico durante seus

plantões de Pronto Atendimento? (possível assinalar mais de uma opção)

Martelo de Reflexos Diapasão Fundoscópio Algodão/Pincel Lanterna

Alfinetes Nenhum dos citados Não realizo o exame

8) Quais dos seguintes exames você tem disponíveis nos locais nos quais trabalha em PA? (possível assinalar mais de uma opção)

Tomografia computadorizada Ressonância Nuclear Magnética Nenhum

9) Com qual frequência você sente necessidade de solicitar exames de imagem para pacientes que vem ao atendimento com queixa de cefaleia? (assinale apenas 1 opção)

Sempre Com frequência Raramente Nunca

10) Em quais situações você realiza o exame físico neurológico completo em pacientes de Pronto Atendimento? (assinale apenas 1 opção)

Em todos os pacientes, independente da queixa

Em todos os pacientes com queixas neurológicas

Em nenhum paciente, solicito logo o exame de imagem

Em nenhum paciente, solicito pedido de parecer do Neurologista

Em nenhum paciente, não julgo este ponto importante

PARTE 4 - QUESTÕES PRÁTICAS

Instruções de preenchimento: assinalar com um X dentro dos parênteses a alternativa desejada para a resposta.

1) Pacientes apresentando-se em pronto socorro com migrânea clássica de forte intensidade, com sintomas resistentes aos analgésicos simples, AINES e triptanos.

Assinale as opções que julga adequadas a serem tentadas como terapia abortiva: (possível assinalar mais de uma opção)

opioides haloperidol clorpromazina antidepressivos tricíclicos
 betabloqueadores nenhuma das anteriores/outras

3) Assinale, abaixo, quais sinais e sintomas que você julga como indicativos de necessidade de investigação adicional para causas secundárias de cefaleia: (possível assinalar mais de uma opção)

Cefaleia de forte intensidade Cefaleia de início em idosos Cefaleia que acorda o paciente a noite Escotomas cintilantes precedendo a cefaleia Cefaleia crônica com mudança no padrão da dor Cefaleia hemicraniana Fotofobia Cefaleia >15 vezes ao mês Alterações ao exame físico neurológico Nenhuma das acima

4) Paciente apresentando-se com cefaleia de forte intensidade. Em quais casos indicaria uma punção lombar? (possível assinalar mais de uma opção)

Caso apresente apenas febre associada, já indicaria
 Caso apresente apenas rigidez de nuca, já indicaria
 Caso apresentasse alteração focal ao exame físico neurológico, antes de exame de imagem
 Caso apresentasse alteração focal ao exame físico neurológico, após exame de imagem

Caso apresentasse rebaixamento do nível de consciência
 Nenhuma das acima

5) Paciente vem ao atendimento com queixa de cefaleia de forte intensidade, solicitando medicação abortiva de crise. Refere que este episódio é igual aos que sempre tem - possui diagnóstico de migrânea com aura de tronco encefálico. Quais drogas das listadas abaixo são contraindicadas neste caso? (possível assinalar mais de uma opção)

analgésicos simples antiinflamatórios não esteroidais triptanos ergotamínicos
 haloperidol clorpromazina opioides nenhuma das listadas, todas podem ser utilizadas

6) A respeito da seguinte afirmativa, assinale verdadeiro ou falso: "A migrânea pode ser complicada por isquemia de tecido encefálico". (assinale apenas 1 opção)

Verdadeiro Falso

7) Paciente vem ao atendimento em decorrência de crise de migrânea de forte intensidade, cursando com hemiparesia a esquerda. Refere que possui crises de migrânea já há 10 anos, e que todas possuem características semelhantes ao quadro atual, com déficit motor. Qual exame complementar você indicaria, na sala de emergência, nesta situação?

Tomografia computadorizada Ressonância Magnética Não faria exames de imagem