

The practice patterns of migraine management among neurologists in the Philippines - A cross-sectional survey

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Abstract

Objectives: We aimed to describe the current preferences of Filipino neurologists in the diagnosis and management of migraine. **Methods:** This is an observational descriptive study using a web-based survey done from November 2019 to June 2020 among certified locally practicing neurologists belonging to the Philippine Neurological Association. **Results:** A total of 259 (56.67%) from the 2018 roster of 457 neurologists participated in the survey. The prevalence of migraine in the respondents was 49.81% with a F:M ratio of 3.3:1. The majority (78%) based their diagnosis on established international criteria for migraine. Many (77%) would request neuroimaging for their patients with a history of more than 3 years of recurrent severe migraine. The most preferred class of drugs for acute migraine was NSAIDs (48.26%). One-third of respondents would give anti-nausea medications for moderate to severe attacks of migraine. About half would not consider using triptans for their patients with moderate to severe episodic migraine attacks. The top three drugs used for migraine prophylaxis were topiramate (80.69%) followed by flunarizine (73.36%) and propranolol (49.03%). Among patients with two or more headaches per week, 74.13% would prescribe prophylactic drugs. The use of a headache diary and the Migraine Disability Assessment Scale (MIDAS) was advised by 62.16% and 14.67% of respondents respectively, while cautioning about medication overuse headache was done by 68.34%. **Conclusions:** We have described the preferred practice of Filipino neurologists in diagnosing and treating migraine patients with locally available resources. The use of measurement tools (specifically MIDAS scoring to assess migraine disability), triptans, and anti-nausea drugs are not popular practices among Filipino neurologists. The survey shows the need to promote the use of prophylactic drugs, counselling for medication overuse and more teaching about primary headaches in medical school.

Keywords: Migraine, primary headache, neurologists, Philippines, practice pattern, prevalence

INTRODUCTION

Neurologists are often consulted for headaches that are difficult to diagnose or that do not respond to usual treatment. In a country with a population of 106.7 million, the Philippines has 470 active, locally practicing and certified neurologists unevenly spread throughout 7641 islands. The 2008 National Health Survey found the prevalence of migraine in the Philippines to be 7.9%, with a female to male ratio of 2.29:1.¹ As in many countries worldwide, migraine is underdiagnosed and undertreated, resulting in personal, social, and economic consequences, particularly because it involves patients in their most economically productive years. With all the recent advancements in headache medicine,

neurologists must be knowledgeable of what is current in the diagnosis and treatment of migraine. The Philippine Neurological Association (PNA), through its headache council, has started work on clinical practice guidelines for migraine. For this to be practical and useful, information on current management practices among locally practicing neurologists is required.

This survey was done to determine the current practices of Filipino neurologists in migraine diagnosis and management.

METHODS

This was a cross-sectional study where all local, practicing board-certified neurologists of the PNA were invited to complete a questionnaire on the

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Internet. The PNA is the only local organization that accredits training programs in neurology and that provides specialty certification for those completing training. The 2018 roster of the association was used to ensure that those invited would have at least a year of neurology practice. Members who were no longer in active practice, practicing out of the country, could not be located, or who were not willing to join the survey were excluded.

The study utilized the online data collection tool "Formplus" to solicit, collect, and manage data using a questionnaire. The items of the survey developed by the primary author were pilot tested by three neurologists who were certified headache masters by the International Headache Society (IHS). The survey questionnaire underwent two revisions before the final version. To ensure good participation, potential respondents who initially did not respond were invited again several times. First, bulk automated invitations were sent using "Formplus," with a second invitation sent after two months for those who had not responded. For those who still did not respond, an invitation was then sent either by direct personal email or by a phone call to achieve adequate participation from the PNA fellows.

The 36-item questionnaire on migraine was divided into five parts: 12 questions on demography, 9 questions on diagnosis, 9 questions on acute treatment, and 8 questions on prophylactic treatment for migraine. In the sections on diagnosis and management, the respondents were asked to estimate how frequently they would perform the action in the statement, choosing from 0%, 25%, 50%, 75%, and 100%. To categorize the preferences of our respondents, we divided their responses into three categories: "Never to seldom" if the responses were 0% or 25%, "Neutral" if the response was 50% and "Frequently to always" if the response was 75 or 100%. Where applicable, we defined a "popular practice" as that which was chosen 75% or 100% of the time in the situations presented.

The study acquired technical review and ethics approval from the Institutional Review Board of The Medical City where the authors were affiliated.

Statistical analysis

Descriptive statistics were done using Microsoft Excel ver16 to describe the demographic data, determine the prevalence of migraine, and to compute the frequencies of responses to the items of the study using counts and proportions.

RESULTS

There were 457 local, actively practicing certified neurologists in the 2018 roster of the PNA, of which 259 (56.67%) participated in the survey. The survey was conducted from November 2019 to June 2020, which included responses obtained during the COVID pandemic. Table 1 shows the demographic data of the respondents.

The prevalence of migraine in the respondents was 49.81% (76.74% females, 24.26% males) with a F:M ratio of 3.3:1. Among those respondents with migraine, there was an almost equal number of neurologists with migraine with (47.29%) and without aura (52.71%). In this survey, patients with combined migraine and tension-type headaches were categorized under migraine alone. Seven respondents had cluster headaches, four of whom also had migraine. About a quarter of the respondents had no regular headaches.

The usual practice of neurologists in the diagnosis and management of migraine is summarized in Table 2. Almost 80% of the respondents utilized the criteria in the International Classification of Headache Disorders (ICHD) of the International Headache Society as a basis for making a diagnosis of migraine. Although the majority would ask about the presence of an aura, inquiring about migraine prodrome and postdrome was not as popular. The majority (63%) advised their patients to use headache diaries to monitor frequency and response to treatment, but only 15% assessed disability with the Migraine Disability Assessment (MIDAS) test. When assessing with a patient with a 3-year history of recurrent severe episodic or chronic migraine, neuroimaging would be requested by 77% of the respondents.

With respect to the pharmacologic treatment of acute migraine, the most preferred drug class by the respondents was non-steroidal anti-inflammatory drugs (NSAIDs) (48.26%) followed by combination paracetamol and NSAIDs (19.31%) and triptans (11.97%). In the management of patients with recurrent episodic moderate to severe migraine, 50.97% would never or seldom prescribe a triptan on the first outpatient consult, and 53.28% would not combine NSAIDs with triptans. The most common instruction to patients when taking a triptan would be to take medication when the headache was just starting (65.25%). Patients with migraine with aura, were usually instructed to take medication during the aura phase (65.25%). The practice of warning against medication overuse was performed by 68.34% of respondents. Only one-third of the neurologists would prescribe

Table 1: Demographic characteristics of respondents (N = 259)

Parameter	n, %
Age (mean, SD)	48.64 ± 10.09
Sex	
Male	94 (36.29%)
Female	165 (63.71%)
Membership type	
Adult neurology	221 (85.32%)
Child neurology	38 (14.67%)
Age bracket	
30-39	55 (21.24%)
40-49	92 (35.52%)
50-59	70 (27.03%)
60-70	38 (14.67%)
>70	4 (1.54%)
Year neurology fellowship acquired	
Year 2000 and below	105 (40.54%)
Year 2001 – 2018	154 (54.69%)
Lecture hours on primary headache in medical school	
0-4 hours	172 (66.93%)
5-9 hours	40 (15.56%)
10-14 hours	22 (8.56%)
Exposure to specialized headache clinic during neurology training	
None	231 (89.19%)
Yes	28 (10.81%)
History of primary headache	
Migraine*	129 (49.81%)
Male	30 (24.26%)
Female	99 (76.74%)
With aura	61 (23.55%)
Without aura	68 (26.25%)
Tension-type headache** (Pure Tension HA)	59 (22.78%)
Tension-type HA (Pure and Mixed)	126 (48.65%)
Cluster Headache alone	3 (1.16%)
Mixed Cluster HA and Migraine	4 (1.54%)
No regular headache	68 (26.25%)

* Respondents with mixed Migraine and Tension-type Headache are categorized under Migraine Headache.

** There are 67 respondents with combined Migraine and Tension-type headache

Table 2: Preferences of Filipino neurologists in making a diagnosis of migraine (N = 259)

Survey Questions	Never to seldom (0-25%)	Neutral (50%)	Frequently to always (75-100%)
1. How often do you make a diagnosis of Migraine using the criteria by the International Classification of Headache (any version) of the International Headache Society?	13 (5.02%)	43 (16.60%)	203 (78.38%)
2. In your history taking, HOW OFTEN do you ask patients if they have AURA? (visual, paresthesia, language)	4 (1.54%)	6 (2.32%)	249 (96.14%)
3. In your history taking, HOW OFTEN do you ask patients if they have PRODROME? (food cravings, mood changes, yawning, fatigue, etc. occurring hours or days BEFORE headache phase.	30 (11.58%)	26 (10.04%)	203 (78.38%)
4. In your history taking, HOW OFTEN do you ask patients if they have POSTDROME? (tiredness, confusion, lowered appetite, stiff or sore muscles occurring AFTER headache phase?	40 (15.44%)	62 (23.94%)	157 (60.62%)
5. For patients with recurrent severe episodic or chronic migraine headaches of more than three (3) years, what are the chances that you would request for neuroimaging?	15 (5.79%)	43 (16.60%)	201 (77.61%)
6. In patients with recurrent severe episodic or chronic migraine headaches without signs or symptoms of a seizure, how many percent of them would you request for EEG?	105 (40.54%)	72 (27.80%)	82 (31.66%)
7. How often do you advise your patients to use a headache diary?	40 (15.44%)	58 (22.39%)	161 (62.16%)
8. Do you adhere to ANY guidelines on the management of migraine headaches?	61 (23.55%)		198 (76.45%)
9. In how many percent of patients with recurrent Episodic moderate to severe migraine headaches would you prescribe or include a TRIPTAN on their first OPD consult?	132 (50.97%)	61 (23.55%)	66 (25.48%)
10. How frequently do you combine NSAIDS with Triptans for your patient with episodic or chronic migraine?	138 (53.28%)	46 (17.76%)	75 (28.96%)
11. When prescribing drugs for your patient with migraine, how often do you caution them about medication overuse headaches?	26 (10.04%)	56 (21.62%)	177 (68.34%)
12. How often do you prescribe medication for nausea/vomiting for your patients with moderate to severe migraine?	107 (41.31%)	74 (28.57%)	72 (27.80%)
13. As a rough estimate, how many percent of patients with 2 or more headaches per week do you prescribe migraine prophylactic drugs?	23 (8.88%)	44 (16.99%)	192 (74.13%)
14. When seeing patients with migraine, how often do you use the MIDAS (Migraine Disability Assessment Score) or any validated tool to assess how disabling their migraine attacks are?	168 (64.86%)	53 (20.46%)	38 (14.67%)

medication for nausea and vomiting for patients with moderate or severe attacks of migraine. The most popular intravenous drugs for intractable debilitating migraine attacks with vomiting in the emergency room were IV NSAIDs (76.83%), IV metoclopramide (71.04%), and IV steroids (40.93%). For migraine patients with two or more headaches per week, migraine prophylactic drugs would be prescribed by 74.13% of the respondents. The top three drugs used for migraine prophylaxis were Topiramate (80.69%) followed by Flunarizine (73.36%) and Propranolol (49.03%). About one-third of the neurologists would prescribe migraine prophylaxis for at least 12 weeks or longer.

DISCUSSION

This study represents the first national survey of Filipino neurologists assessing their clinical practice with respect to the diagnosis and management of migraine. Even though several papers have studied the prevalence of migraine among neurologists, only a few have delved into the practice pattern of migraine management among neurologists.²⁻⁵

The responder rate in this survey was 56.67%, similar to Taipei and US studies which had a responder rate of 23.2% and 24.5% respectively.^{2,3} Close to half of the fellows (49.81%) of the PNA had a migraine history, with three-fourths of them being females, which is comparable to other published data.^{6,7} There was an almost equal number of neurologists with tension-type headaches and migraine as compared to the 4:1 ratio noted by Rizzoli & Mullally in their paper.⁶

According to the Global Burden of Disease study 2021, migraine is the second leading cause of disability worldwide.⁷ Migraine affects people in their most productive time of life. People with migraine are underdiagnosed, undertreated, and stigmatized. A survey on the delivery of care for patients with headaches and migraine in 24 countries by the Asian Oceanian Association of Neurology showed a scarcity of clinical guidelines, subspecialty training, dedicated headache clinics, and patient advocacy organization for the care of headache patients in the participating countries.⁸ Similar observations were seen in 120 countries surveyed in the 2011 WHO and Lifting the Burden foundation project.⁹ Despite limitations in government support and infrastructures for migraine, neurologists should be able to provide the correct diagnosis and best available current treatment.

With the limited number of neurologists in the country, primary physicians need to be well prepared to see the bulk of headache patients. Having less than 5 hours of lectures on primary headaches in medical schools may be insufficient to cover this important topic. Only a minority of Filipino neurologists had exposure to a specialized headache clinic in the course of their training, which may partly be due to the lack of headache specialists in the country. Progress in promoting headache medicine started in 2013 after eight local neurologists underwent headache master courses offered by the IHS in Japan¹⁰, an opportunity that was repeated in 2018, when 10 more neurologists attended a course offered in Australia. In addition, the World Headache Society, established in 2020, has been offering online headache medicine courses for underdeveloped countries, developing economies, and economies in transition, from which our local neurologists are benefiting.¹¹ Currently, there are no headache centers yet in the country, and few hospitals with PNA-accredited neurology training programs have a participating dedicated headache clinic. Enticing neurologists to choose headache as a subspecialty, dedicating more time to teaching headaches in medical schools, and more exposure of neurology residents to headache specialists will go a long way in improving the current delivery of care for migraine and headache patients.

A correct diagnosis is essential for the proper treatment of migraine. Migraine is a clinical diagnosis, and confidence in utilizing the criteria by the ICHD 3rd Edition¹² will often avoid expensive tests and neuroimaging. Although querying for aura is a popular practice, the practice of asking about migraine prodrome and postdrome symptoms is not as popular. Asking about these symptoms is important as this can strengthen the clinical diagnosis of migraine. In this survey, many would still request unnecessary neuroimaging in patients who have a history of more than 3 years of severe migraine. In the Philippines, the cost of tests and treatments is primarily shouldered by the patient. Although universal health care has been approved in the country, coverage for the treatment of migraine through the National Health Insurance Program administered by PhilHealth is limited to inpatient admission, with a maximum reimbursement of Php 5500 (USD 110). However, many patients still insist on getting imaging for assurance, resulting in neurologists ordering investigations even if there are no red flags to indicate a secondary headache. This practice should be discouraged as it is proven to be an

Table 3: Preferred management of migraine by Filipino neurologists (N=259)

1 st line acute headache drug	N (%)
NSAIDS	125 (48.26%)
Combined NSAID plus paracetamol	50 (19.31%)
Triptans	31 (11.97%)
Paracetamol	26 (10.04%)
Others	27 (10.42%)
Prescribe triptans on 1 st outpatient consultation (moderate to severe episodic migraine)	
Never to seldom	132 (50.97%)
Neutral	61 (23.55%)
Frequently to always	66 (25.48%)
Instruction on taking a triptan	
When headache is still starting	169 (65.25%)
When headache is moderate or severe in intensity	47 (18.15%)
No advice	1 (0.39%)
Don't prescribe a triptan	42 (16.22%)
Instruction to take triptan in migraine with aura	
During aura phase	169 (65.25%)
When headache starts	60 (23.17%)
No opinion	30 (11.58%)
Top 2 class of migraine abortive drug (non-triptan)	
NSAIDS	189 (72.97%)
Combined NSAID plus paracetamol	45 (17.37%)
Paracetamol	10 (3.86%)
Others	15 (5.79%)
Frequency of combining NSAIDS and triptans	
Never to seldom	138 (53.28%)
Occasional	46 (17.76%)
Frequently to always	75 (28.96%)
Warning about medication overuse headache	
Never to seldom	26 (10.04%)
Occasional	56 (21.62%)
Frequently to always	177 (68.34%)
Prescribe medications for nausea/vomiting	
Never to seldom	107 (41.31%)
Occasional	74 (28.57%)
Frequently to always	78 (30.12%)
Top intravenous drugs for patients admitted to emergency room	
IV NSAIDS	199(76.83%)
IV metoclopramide	184 (71.04%)
IV steroids	106 (40.93%)
IV high dose paracetamol	101 (40.00%)
Others	37 (14.29%)
Prescription of migraine prophylactic drugs (2 or more migraine headache days per week)	
Never to seldom	23 (8.89%)
Occasional	44 (16.99%)
Frequently to always	192 (74.13%)
Top migraine prophylactic drugs	
Topiramate	209 (80.69%)
Flunarizine	190 (73.36%)
Propranolol	127 (49.03%)
Divalproate	103 (39.77%)
Amytriptyline	74 (28.57%)
Others	41 (15.83%)
Number of weeks prophylactic drugs are prescribed	
2 weeks	46 (17.76%)
4 weeks	64 (24.71%)
6 weeks	15 (5.79%)
8 weeks	48 (18.53%)
12 weeks	76 (29.34%)
24 weeks	10 (3.86%)

NSAID: Non-steroidal anti-inflammatory drugs

unnecessary use of funds, most especially for patients who suffer from long standing clear-cut episodic migraine. Approximately half of the respondents continue to request for EEG despite this test providing little additional value in the diagnosis of migraine.¹³ This may be because, in some areas of the country, an EEG may be the only available investigation. Despite this, diagnosis using the ICHD criteria must be promoted as this can greatly reduce unnecessary costs for the patient.

Two types of medication are available for migraine: abortive and preventive/prophylactic drugs. The most common first-line abortive medications are NSAIDS, preferred by almost half of the respondents. A combination of paracetamol/NSAIDs comes in as a distant second choice, and triptans are the least preferred choice for abortive treatment. It is a common practice to give NSAIDS because these are easily accessible drugs and self-medication is rampant. In the country, there are limited migraine-specific medications. The fact that triptans are not a very popular choice among neurologists locally despite being the gold standard treatment for moderate to severe acute attacks of migraine may be attributed to the fact that among the six approved triptans in the US and Europe, only two are available locally, and these drugs are too expensive for many patients in the Philippines. For those prescribing triptans, the popular practice is to instruct patients to take triptans during the aura phase despite the recommendation to give them at the onset of headache.¹⁴ Reliance on abortive agents places patients at risk for developing medication overuse headaches. Approximately 70% of the respondents would caution their patients regarding this condition. This topic needs to be reinforced among neurologists as medication overuse can lead to chronic migraine which is both preventable and remediable. Ergotamine and dihydroergotamine for acute attacks of migraine and indomethacin for patients with paroxysmal hemicrania are also not available in the country.

Prophylactic migraine treatment is seldom started by primary physicians, and neurologists are often the ones to determine if this is indicated. Contrary to the current recommendation of starting these drugs if there is at least one headache day per week¹⁵, a majority would start prophylactic drugs only if there are at least two attacks per week. This may reflect the conservativeness of Filipino neurologists. The most used prophylactic medications are Topiramate, Flunarizine, and Propranolol. The survey showed that efficacy

and costs are major considerations for starting prophylactic medication. One important finding is that there is a tendency for local neurologists to prescribe these drugs for a short period, which may not be sufficient for the drug to take effect. Guidelines would recommend a trial of up to two to three months for a drug to be considered ineffective.¹⁶

Gastrointestinal symptoms usually associated with migraine such as nausea, vomiting, and gastroparesis may complicate treatment by delaying the absorption of medications.¹⁷ Anti-nausea medications by themselves can be helpful in acute migraine, yet less than a third of the respondents would prescribe parenteral anti-emetics for those with moderate to a severe migraine.

Other established treatments for migraine such as single-pulse transcranial magnetic stimulation, vagal nerve stimulation, behavioral therapy, nerve blocks, and onabotulinum toxin injections for chronic migraine can also be helpful for patients with disabling migraine, but are not readily available in the country. Onabotulinum toxin injection for chronic migraine is not popularly used because there are only a few neurologists who can provide this service. With more neurologists taking up headache medicine as subspecialty, the country looks forward to advancing the treatment for migraine, including the availability of headache centers and provision of proven nonpharmacologic procedures for migraine such as cognitive behavioral therapy, vagal nerve stimulation and single-pulse transcranial magnetic stimulation.

Implications and recommendations

There is always room for improvement in the care of millions of Filipinos suffering from disabling migraine. Knowledge of the variation in practices on the management of migraine helps us target areas for improvement and can help in the development of local clinical practice guidelines. It is necessary for doctors to keep their knowledge of headache medicine updated, especially for neurologists and primary physicians. Essential drugs in the treatment of migraine should be made readily available. Along with this, there is a need for more headache specialists especially those doing procedural headache interventions.

Limitations

The paper is not intended to assess the knowledge and skills of neurologists in the care of migraine

patients as decision-making is highly affected by the situation in the neurologists' place of practice and the preference of their patients. The responses may have been favorably influenced by the series of lectures on headache which started a year before the survey due to the introduction of a monoclonal antibody for migraine prophylaxis in the country. We did not validate whether the respondents have true migraine as diagnosing this disease is part of the core competencies of all neurologists.

In conclusion, we have described the preferred practice of Filipino neurologists in diagnosing and treating migraine patients with locally available resources. The use of triptans and anti-nausea drugs, as well as the utilization of headache diaries and measurement tools to assess migraine disability, are not a popular practice. Our study points to the need for increased use of prophylactic drugs for patients with frequent and disabling migraine, greater usage of the diagnostic criteria of the IHS, counseling about medication overuse headache, encouragement of young neurologists to pursue headache medicine, and more time dedicated to teaching primary headache in medical school.

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