

## Migraine Without Aura - Towards a New Definition

M V Francis

Headache & Neuro Ophthalmology Services, Teresa Eye & Migraine Centre, Cherthala, Alleppey, Kerala, India

### Abstract

**Objective:** To quickly diagnose migraine without aura in a busy clinical practice in India and other developing countries.

**Background:** Differentiating migraine from episodic tension type headaches is difficult if one strictly follows international classification of headache disorders - 3rd edition beta version (ICHD-3 Beta), as there are many overlapping statements. Another problem is applying criterion E, not better accounted for by another ICHD-3 beta diagnosis. Duration, presence of head pain and associated migraine diagnostic symptoms except vomiting and nausea are not mandatory to diagnose episodic syndromes that may be associated with migraine (ICHD-3 Beta code 1.6) or periodic syndromes (ICHD-2) that are commonly precursors of migraine.

**Method:** A retrospective chart review was done on 6,200 patients. All were diagnosed as migraine without aura, probable migraine or benign secondary headaches, and the following four common features were identified- recurrent headaches, activity affected, absolutely normal in between episodes and absence of red flags. History of two more additional helpful diagnostic features was also noted- Common migraine triggers precipitating these headaches and family history of migraine or its synonyms. Exclusion criteria include aura, autonomic manifestations, and headaches lasting more than 3 days, headaches with migraine features that are not activity dependent, post-dromal symptoms, fever and other systemic disorders.

**Results:** 92% of patients fulfilled the four simple migraine diagnostic features. 88% had one of the common migraine triggers precipitating their headaches and 91% had family history of migraine.

**Conclusion:** Recurrent activity affected headaches with absolute normality in between episodes and without any red flags, should lead one to consider the diagnosis of migraine without aura.

**Keywords:** New definition; Migraine without aura; Episodic tension type headaches; Episodic syndromes; Red flags for migraine

**Corresponding author:** M V Francis

✉ [mvfrancis@rediffmail.com](mailto:mvfrancis@rediffmail.com)

MBBS, MS, Chief Consultant, Headache & Neuro Ophthalmology Services, Teresa Eye & Migraine Centre, Cherthala, Alleppey, Kerala, Postal Code-688524, India.

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### Introduction

*Global burden of disease studies* [1-4] report that migraine is the third most prevalent medical disorder in the world. Migraine is ranked as the 8th most burdensome disease and the seventh highest cause of disability in the world and is associated with a number of other systemic disorders. Despite its considerable burden, migraine is under-diagnosed and under-treated. There

is only limited information on the prevalence, diagnosis and characteristics of migraine in developing countries like India. One of the most important reasons for not recognizing migraine in a busy practice is the difficulty in differentiating migraine without aura from frequent episodic tension type headaches and many patients with recurrent headaches of migraine origin get a diagnosis of Tension vascular headache.

Differentiating migraine without aura from episodic tension type headaches is difficult and confusing if one strictly follows ICHD3 Beta [5] diagnostic criteria. There are more than one overlapping statements in both the diagnostic criteria. Duration, number of episodes, moderate intensity, no more than one of phonophobia and photophobia are examples. Moreover, migraines in children are usually bilateral, like tension type headaches. Many adult migraineurs too report bilateral headaches lasting less than 4 hrs. Some fail to fully meet the diagnostic criteria of either migraine or tension (short duration / bilateral / non-throbbing / no associated features of nausea / vomiting / phonophobia and photophobia or only phonophobia or photophobia alone [6-12]. Another frustrating situation is applying criterion E) Not better accounted for by another ICHD-3 diagnosis which means every practitioner has to master ICHD-3 Beta criteria fully which is practically impossible. In this clinical scenario, the clinician gets utterly confused and most of them receive a diagnosis of Tension vascular headaches or probable migraine / probable tension / atypical or non-specific headaches. A diagnosis of probable / atypical is not reassuring for many patients or families as most of them are worried about an underlying brain tumour when they come to the clinician with recurrent headaches.

ICHD-3 Beta [5] has highlighted the diagnostic difficulty most often encountered among the primary headache disorders that is to discriminate between tension type headaches and mild migraine without aura attacks. This is more so because patients with frequent headaches often suffer from both disorders, and a stricter diagnostic criteria is given in the appendix which may be helpful in day-to-day practice. Duration, presence of head pain and associated migraine diagnostic symptoms except vomiting or nausea are not mandatory to diagnose episodic syndromes (1.6-episodic syndromes that may be associated with migraine) officially considered to be migraine related. Benign paroxysmal torticollis, benign paroxysmal vertigo and Vestibular migraine in the appendix are of short duration (minutes only) and cyclical vomiting with one hour duration. This group of disorders occurs in patients who also have typical migraines or who have an increased likelihood to develop migraine. Complete resolution or normality between episodes or complete freedom from symptoms between attacks is the diagnostic hallmark of these entities.

## Diagnostic Criteria of Migraine without Aura

- A) At least 5 attack fulfilling criteria B – D.
- B) Headache attacks lasting 4 to 72 hrs (untreated or unsuccessfully treated).
- C) Headache has at least two of the following four characteristics- 1) unilateral location 2) pulsating quality 3) moderate or severe pain intensity 4) aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs)
- D) During headache at least one of the following occurs: 1) nausea / vomiting 2) phobophobia / phonophobia
- E) Not better accounted for another ICHD-3 Beta diagnosis.

Migraine headache in children and adolescents (aged less than

18 years) may last for 2 - 72 hrs, which is more often bilateral. In young children, photophobia and phonophobia may be inferred from their behaviour.

## Diagnostic Criteria of Infrequent Episodic Tension Type Headache

- A) At least 10 episodes occurring on less than 1 day / month on average (< 12 days / year) and fulfilling criteria B-D.
- B) Lasting from 30 minutes to 7 days
- C) At least 2 of the following four characteristics occurs: 1) bilateral location 2) pressing or tightening ( non-pulsating) quality 3) mild or moderate intensity 4) not aggravated by routine physical activity such as walking or climbing stairs
- D) Both of the following: 1) no nausea or vomiting 2) no more than one of phonophobia or photophobia
- E) Not better accounted for another ICHD 3 diagnosis.

For frequent episodic TTH - at least 10 episodes of headache occurring from 1 to 14 days / month on average > 3 months (> 12 and < 180 days / year).

Frequent ETTH often co-exist with Migraine without aura. Both can be associated with or without peri-cranial tenderness. Mild nausea is a diagnostic symptom in Chronic TTH.

From ICHD-3 Beta:

When headache fulfils criteria for both Probable migraine and Tension type headache, code as Tension type headache under the general rule that definite diagnoses always trump, probable diagnoses. When headache fulfils criteria for both Probable migraine and Probable tension type headache, code as the former under the general rule of hierarchy, which puts Migraine and its subtypes before Tension type headache and its subtypes

## Methods

A retrospective chart review was done on 6,200 patients (Age group 5 to 60 yrs) over a period of 2 yrs (June 2013 to May 2015) attending to a migraine clinic in a coastal district of Southern India. All were diagnosed as migraine without aura/probable migraine /brief or early migraine / other benign secondary headaches during a period of 9 years (2004 June to 2013 May, applying ICHD-2 diagnostic criteria). This Southern coastal region is in the state of Kerala, the highest literate (more than 90%) state in India and health indices on par with advanced and developed Western countries .Majority of the practitioners here examine up to 250 patients a day, out of which nearly 20% will be with recurrent headaches as one of the complaints. Charts / files of recurrent activity affected headache patients with a diagnosis of Migraine without aura / Probable migraine / benign secondary headaches were retrieved by the nursing staff (10 to 15 charts every day). Probable migraine was diagnosed when the duration criterion was less than 4 hours in adults and less than 2 hours in children or when only phonophobia or photophobia was reported not both. The following four common features were noted in all with a diagnosis of migraine / probable migraine- (1) recurrent headaches-more than 5 episodes (2) activity affected (sit quiet / lie down / motionless / sleep off- fulfilling 2 migraine diagnostic

pain features (moderate to severe intensity / causing avoidance of activities or aggravated by routine physical activities) (3) absolutely normal in between episodes (after sleep / vomiting / abortive medication ingestion / taking rest / spontaneously after avoiding causative triggers like sun exposure) (4) no red flags present (signs / symptoms). From the authors past 25 years of experience, two more additional diagnostically helpful features also were included - common migraine triggers precipitating activity affected headaches and family history of migraine or its synonyms [13-18]. Exclusion criteria-incomplete charts, all with aura features ,associated oculo-nasal autonomic manifestations s/o TACs, intermittent headaches lasting more than 3 days duration, non-activity affected headaches with migraine features, patients with migraine post-dromal symptoms , cranial neuralgias, fever and other systemic disorders.

## Results

5,704 (92%) patients fulfilled the four simple diagnostic features and were diagnosed as migraine without aura. The rest (other benign secondary) were acute rhino -sinusitis, Ocular - refractive, post traumatic, post inflammatory / infective and TMJ dysfunction. 5,456 (88%) had one of the common triggers [5-9] precipitating their headaches. These common triggers were sun exposure, travelling by bus, hunger, missing meals at the right time, sleep disturbances, tension anxiety situations like examinations, funerals and strenuous physical exercises like cycling, dancing etc. 5,838 people (94%) had family history (first or second degree relatives) of similar headaches which were diagnosed as migraine or its synonyms. 23 Migraine synonyms were documented in this part of India.

## Migraine Synonyms

Sinusitis, high and low blood pressures (if dizzy spells with headache), less blood, less sodium, ocular refractive- spectacle related headache, gas related, fluid descending down, normal ordinary headaches, period pain (menstrual migraine), PCO pain (polycystic ovary pain for menstrual migraine), vitamin deficiency, no headache but occasional blurring of vision (typical aura), local slangs, terminologies- two in this region of India, ear balance dysfunction for Vestibular migraine, no headache but head throbbing, motion sickness with headache, no headache but head discomfort, paresthesia, no headache but activity affected head pain when exposed to migraine triggers, (on questioning they are typical / probable migraine attacks), polyp pain, DNS pain(deviated nasal septum) / fluid descending down the scalp.

## Discussion

According to ICHD-3 Beta, patients meeting one of the sets of criteria for tension type headaches may also meet the criteria for one of the sub forms of probable migraine [5, 12, 13]. In all such cases, ICHD-3 Beta recommends to consider all other available clinical information that is not part of the explicit diagnostic criteria to decide which of the alternatives is more likely. But no details / guidance is found from these other available information in ICHD. Family history of migraine and common migraine triggers [14-18] precipitating headache attacks are two important evidences. But it is not always possible to get such history especially in children. Either the father may not be aware of mother's past headache history or one of them will not be available for questioning.

Secondly the time gap between the exposure to a trigger and the onset of head pain can vary from few hours to two days (my own documentation of sun exposure triggering migraine after two days [19], caffeine withdrawal causing headache within twenty four hours , headache or migraine developing within 5 days of daily consumption of exogenous oestrogen for 3 weeks which has been interrupted or longer - both in ICHD-3 Beta) and some patients may not be able to correlate the link or connection between trigger exposure and the head pain developing after variable duration.

The clinching diagnostic evidence in episodic syndromes that may be associated with migraine (1.6) is the absolute normality in between episodes. Another ICHD-3 Beta recommendation is that, in the case of abdominal migraine, another episodic syndrome in which the diagnostic abdominal pain duration is 2 hours, a careful history of presence or absence of headache must be taken and if headache during attacks of abdominal pain is identified, a diagnosis of migraine without aura to be considered. These headaches in children and adolescents may or may not fulfil migraine without aura diagnostic features. Duration, migraine diagnostic symptoms of nausea, vomiting, phonophobia and photophobia are not essential in diagnosing these disorders and complete freedom from symptoms and absolute normality in between two attacks are the most important . Of course, red flags to be kept in mind and excluded in all cases. Red flags can be assessed from a questionnaire without the clinician spending much of his / her time and a 3 minute rapid neurological / neuro-ophthalmological examination can easily rule out most of the red flag signs in a busy practice. Other than the SNOOP mnemonic for identification of red flags, the author has another simple mnemonic for busy practitioners to rule out the possibility of life and vision threatening headaches.

This mnemonic is- I W A R N U Please: Incapacitating, Worst, Abrupt, Recent, New onset or Nocturnal and Unusual headache symptoms.

Please mean all symptoms or signs starting with P, such as:

Pituitary, positional, postural, posterior, pattern-change, puking-early morning or frequent / post-traumatic / progressive, pressure- blood pressure, eye pressure (intermittent angle closure glaucoma) and CSF pressure (IHH), personality changes, psychosis, phacomatosis, polymyalgia rheumatica, previous history of migraine absent or different, periodic strabismus, papilledema, painful TTH (Twelfth nerve palsy / tinnitus / Horner syndrome) and peculiar symptoms like galactorrhea, impotence, gynecomastia, amenorrhea, skin changes, sensory or memory disturbances, prolonged or peculiar auras.

Other than the four symptoms given by ICHD-3 Beta (disorders of temperature regulation, abnormal emotional state, altered thirst or appetite) many other symptoms of pituitary / hypothalamic-hyper or hypo function must be kept in mind.

A headache questionnaire with all these details will be the most ideal way to get all the necessary information from the patients before they come to the clinician for the examination. Nurses or other paramedical professionals can help the patients in filling up

the questionnaire or clear their doubts. Every practitioner must be trained in fundoscopy to diagnose papilledema and in doing confrontation visual field testing mainly to rule out a chiasmal lesion.

It becomes a real art eliciting past or family history of migraine. The numerous synonyms were due to the very first diagnosis made by their first contact practitioner whether General Practitioner or Complimentary or Alternative Practitioners. Thus many migraineurs might assume that their illness is sinusitis, high BP, anaemia, eye-sight related etc. Many Vestibular migraines are diagnosed as Low blood pressure, ear balance dysfunction, less sodium or blood etc. It is really surprising that even the most educated people in the society like professors; researchers etc. consider head pain, head discomfort and head throbbing as entirely different disorders and symptoms. A direct question like whether you get headache or did you suffer from headaches in the past will not unravel nearly 25% of migraines in this part of India, the most literate state in the country.

It is not surprising that a very high incidence of migraine (more than 90%) was documented in this clinic-based study as recent population based studies [20-22] show a very high prevalence of migraine especially in women, contrary to what has been documented in the past (up to 78% tension type headaches in the community, according to ICHD-3 Beta)

The present study has some limitations- Firstly, there were no statistical evaluation done. Secondly, this clinical based retrospective study design might cause several types of errors such as selection bias. Thirdly, it is not prospective and no gold standard for comparison / no control group. Fourthly, field testing done only in limited GP centres or Physician clinics (found to be extremely useful). These study findings were already presented

in 16 different scientific platforms in India and highly appreciated by all. It is obvious that these findings need to be interpreted carefully and further studies are required.

This study proves that whenever patients present with recurrent headaches, with activity getting affected and absolute normality in between episodes without any red flags, migraine must be the first diagnostic consideration. (If activity is not getting affected, ETTH can be thought of, even though the triggers are the same). These features will easily differentiate migraine from tension in a busy practice. Additional features like common migraine triggers precipitating headache and family history of migraine [17, 18, 23-25] were found to be reassuring to the patients and family members.

## Conclusion

In a very busy daily clinical practise in countries like India where more than 90% of patients suffer from headache are seen and managed by non-neurologists, probability of not recognizing and diagnosing migraine is very high and a critical concern. Studies show that many patients with headache characteristics consistent with migraine are not receiving adequate treatment because migraine as a diagnosis was never made and recurrent headaches are often diagnosed as tension type headaches or tension vascular headaches. A new definition of migraine without aura, based on the above study findings will be extremely helpful for any clinician to differentiate episodic tension type headache from episodic migraine in a busy practice.

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