

43 Headache in the Tropics: India

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Abstract: Headache management in the Tropics is somewhat different from what prevails in the Temperate zones primarily because of the many regional factors that impact a primary headache disorder like migraine. There are different geographical factors, different environmental problems and different cultural attitudes. The aim of this chapter is to try and appraise a worldwide audience of these factors that influence headache prevalence and treatment in the Tropics.

India with a population of 1.2 billion is the second most populous country in the world and is located in the Tropics to the north of the equator. Some of the epidemiological studies on headache from this region have been detailed. Medication overuse headache is not so common in India as in the West. Barriers to care have been divided into those that are patient-related, physician-related and regional. Overpopulation, low literacy levels, low income, growing urbanization, different triggering factors and nonavailability of latest treatment options are some of the more important regional problems. Alongside are listed the efforts needed to overcome these barriers.

Special measures are therefore required to tackle the burden of headache in India. Addressing these issues will also go a long way to providing headache relief in other Tropical regions where similar conditions prevail and where more than 40% of the world population lives.

Introduction

The Tropics refers to the region by the Equator limited in the north by the Tropic of Cancer and in the south by the Tropic of Capricorn and largely includes sub-Saharan Africa, the Indian subcontinent, rest of Asia, Central and South America, and parts of Australia. Approximately 40% of the world's population lives in the tropical zone. Being close to the Equator, the climate is hot and humid for most parts of the year and there are also many socioeconomic factors that are different in this region. Therefore when we talk of headache in the Tropics, what we actually mean is factors that impact on headache because of situations existing in tropical regions and different from temperate zones. With a view to appraising a worldwide audience of the important role of regional differences, the author reviews here factors that impact on "Headache" in India and discusses the different "Barriers to Care" and "Efforts" needed to improve the headache situation in this setting. Some of the more important contributions to headache literature from India have also been listed.

Primary headaches are more common in practice than secondary headaches. Though there may not be too many variations in the clinical presentations of primary headaches across different regions of the world, treatment outcomes may vary depending on differences in genes, geography, and environment. Attitudes, awareness, and health-care policies all have an influence on the way headaches are perceived and managed. Migraine is the main cause of headache burden worldwide. When you look at the factors that can impact on "Migraine," there are many differences between the Tropics and the Temperates. Some secondary headaches that are more commonly seen in the Tropics are those due to intracranial granulomas, neurocysticercosis, meningococcal infections, and cerebral venous thrombosis.

Headache in India

India is located to the north of the equator and besides the heat and humidity there are other migraine-triggering factors that contribute to the burden of headache. Against the backdrop of

other health concerns, headache management in India is not given the priority it deserves in the health-care system. Like elsewhere in the world, there is limited teaching on “headache” in medical schools and headache diagnosis and treatment are often suboptimal. Headache medicine is still not a recognized subspecialty in India. Myths and misunderstandings abound and headache patients end up being seen by many different specialists, each of whom looks at the problem through the window of their own speciality. For all these reasons, headache patients in India do not receive adequate sympathy, care, and attention. There are many additional barriers to headache care in India.

With a population of more than one billion, India has 16% of the world population and therefore health priorities keep changing. Low literacy levels make it more difficult for patients to understand the treatment plan and expectations are always high. The health-care system in the country is also not geared to supporting effective headache treatment. Less than 5% in India seek private care or managed care. With a significant part of the population being in the lower income group, financial constraints and fixed notions lead to poor compliance. Twenty-five percent of the Indian population lives in the cities and 75% in villages. Growing urbanization leads to infrastructural breakdown and increase in stress levels. Most of the rural population tries alternative treatment methods such as homeopathy, ayurveda, and unani. Physicians do not understand the true misery of headaches and time constraints and overcrowded clinics add to the problems of patients with headache. Headache diaries are not maintained, disability levels are not evaluated, and the true burden cannot be assessed.

Regional Epidemiological Data

There have been no standardized population-based epidemiological studies that can be quoted as indicative of the true prevalence. Gourie-Devi et al. (2004) did an epidemiological study of neurological disorders in Southern India that included evaluation of patients with headache. Ravishankar (1997) analyzed the pattern of headaches seen at a tertiary referral center in India. Out of 1,000 patients who presented with headache, 86% had primary headaches that were classifiable, 11% were unclassifiable, and 3% had secondary headaches. Of the primary headaches, 55% had migraine, 28.3% had tension-type headache, 22.2% had cluster headache and 0.5% had miscellaneous primary headaches. There is also a paucity of headache literature from India. Shah and Nafee (1999) studied 2,982 patients from the Kashmir Valley and analyzed the various headache patterns and cranial neuralgias. They found Ramadan fasting to be a significant factor for precipitating migraines. Shukla et al. (2001a, b) investigated blood nitrite levels and showed that platelet aggregation response and blood nitrite levels were not significantly altered after an attack in patients with migraine. They also evaluated platelet ketanserin binding in migraine patients. Garg et al. (2004) have reported on patients with solitary cisticercus granuloma and seizures who also complained of disabling headache. Sixteen patients with new onset disabling headache and solitary cisticercus granuloma with seizures were treated with a short course of prednisolone and obtained long-lasting relief. Chakravarty (2003) and Chakravarty et al. (2004) analyzed chronic daily headache (CDH) in adults and children and also studied the prevalence of trigeminal autonomic cephalalgias (TACs) seen at their center in the eastern part of India. They found that CDH remains relatively unexplored in the Indian setting and analgesic overuse is often not recognized. The average dose of analgesics implicated in CDH seems much less than what is reported in the West. They found that TACs are relatively uncommon in their center.

Medication overuse headache (MOH) is not as big a problem in India as in the West. There is however a need for more evidence on this. There have been only two clinic-based references. Ravishankar (2008a) from a headache clinic analysis noted that there were only 184 patients with MOH fulfilling I H S criteria out of a total of 6,000 patients who presented to the Headache Clinic between 2000 and 2007. Chakravarty (2003) analyzed his patients with chronic daily headache and found a comparatively low incidence of MOH as well. The commonest drug causing MOH in India is ergotamine. Triptans are costly for the average Indian migraine patient, combination analgesics and opioids are limited in number, and short-acting barbiturates are not used for headache treatment in India.

Panda and Tripathi (2005) have reported an observational study on the clinical characteristics of migraineurs from India. They reported a low frequency of patients with a positive family history of headache. Gupta and Bhatia (2006) found that 73.1% of their migraine patients had autonomic features. Ophthalmoplegic migraine (OM), is a unique disorder characterized by recurrent attacks of ophthalmoplegia, following severe migrainous headaches. Lal (2010) reported 62 adult patients with OM in a cohort of 7,000 patients with migraine seen in a tertiary care hospital in India. These patients developed acute ophthalmoplegia with severe attacks of migraine. Isolated abducens palsy was seen in 35 (56.5%) patients at presentation thus suggesting that abducens nerve palsy is not as rare as previously reported.

The advent of gadolinium magnetic resonance imaging (GdMRI) studies provided new insights into the pathogenesis of OM and triggered a sea change in the perception of the entity. The initial literature on MRI changes in OM was mostly confined to single case reports. In the first large series of OM in the post-MRI era in 1998, Mark et al. (1998) reported six patients with recurrent third nerve palsy associated with thickening and enhancement of the involved nerves on GdMRI. Besides cases with enhancement, lack of third nerve enhancement on GdMRI is also well documented in the literature. Lal reported 62 adult patients (age 15–68 years) of OM from India. None of the patients had any nerve enhancement. Ravishankar and Karthik (2007) and Ravishankar (2008b) also reported lack of enhancement in four patients of OM with involvement of third nerve. Thus, most of the patients who are diagnosed with OM in the Indian setting do not show enhancement as happens in the West.

Barriers to Care

Ravishankar (2004) reported on barriers to headache care in India and the efforts that are needed to improve the situation. The barriers were grouped as patient-related, physician-related and regional. Local problems that pertain to headache management, some unusual triggers seen in India and the inadequacies of the health-care system have been outlined below.

1. *Patient-related barriers:* Myths and misconceptions about headaches, patients' own presumptive diagnoses, and delays in seeking treatment are all barriers to care (● [Table 43.1](#)). Financial constraints commonly lead to failure to comply with follow-up consultation and long-term prophylactic treatment. Treatment of a primary headache is perceived as an unnecessary waste of money by many patients and their families for a recurrent disorder with no permanent cure. Cheap and easy access to CT scans can be detrimental. Walk-in CT scans are obtained and all further treatment is given up once they are told that the scan is normal. Low literacy levels lead to an inability to understand migraine and the reasons for

■ **Table 43.1**

Barriers to care: Where do patients go wrong?

<i>Their own myths and misconceptions</i>
1. That headaches are caused by a defect in visual acuity
2. That headaches are caused by sinus infection
3. That headaches are caused by acidity or constipation
4. That headaches are caused by emotional upset
5. That there is no permanent cure, so you might as well live with it!
<i>Delay in the seeking of treatment</i>
1. Because of self-medication
2. Because of alternative treatment options
3. Because of the fear of side effects of allopathic drugs
<i>Poor compliance due to:</i>
1. Financial constraints
2. Frequent change of doctors
3. Poor control of triggers
4. Wrong expectation levels

■ **Table 43.2**

Barriers to care: Where do physicians go wrong?

Wrong diagnosis
1. Low emphasis of headache in medical curriculum
Wrong treatment
2. Faulty drug choice
3. Suboptimal dosages
4. Inadequate duration of prophylaxis
Under-use of non-pharmacological strategies
Wrong referrals
Lack of efforts to educate patients

recurrent head pain. Many patients change doctors frequently, consult different specialists, do not recognize the importance of trigger-control measures, and lapse from care if they are not assured of a permanent cure.

2. *Physician-related barriers:* In India, as in most countries, all doctors treating headaches are not aware of the recent advances in migraine management and do not have the right attitude toward headache (▶ [Table 43.2](#)). Most physicians do not appreciate the true misery caused by headache, and the medical curriculum does not adequately train in the treatment of headache disorders. Overcrowded clinics with no regulated system of consultation by prior appointment make it more difficult for the general neurologist who also has to treat

■ **Table 43.3**

Barriers to care: region-based issues

1. Over population
2. Growing urbanization
3. Cultural and social diversities
4. Triggers peculiar to India
5. Inadequacies of the health-care system
6. Availability of alternative treatment options
7. Low literacy levels
8. Low income levels

epilepsy and stroke, to devote much time to patients with headache. Assessment of burden with the migraine disability assessment (MIDAS) score is difficult in India because of the lack of records about days of work lost due to headache, and, therefore, care is not stratified. Patients and family practitioners do not readily accept in-patient management for chronic recurrent headaches, even for status migrainosus. Drug rebound headaches go unrecognized, alternative routes for drugs are unknown, and the latest treatment options are not used.

3. *Regional barriers:* These barriers (▶ [Table 43.3](#)) are beyond the control of both patient and physician, vary widely, and may have a direct bearing on the prevalence, the frequency, the severity, and the intractability of headaches. The barriers peculiar to each geographic setting must be understood if we are to make a joint effort to decrease the burden of headache worldwide. Eight major region-specific factors have an effect on the management of migraine in India.
 - (a) *Over population:* With a population of more than 1 billion, India is the second most populous country in the world, second only to China. India has 16% of the world population and with an annual population growth rate of 19.5%, India's population is expected to reach 1.2 billion by the year 2011. This population growth also puts significant strain on the health-care system. Our health priorities also keep changing and so long as other major health problems such as tuberculosis, malaria, HIV, etc., are not brought under control, we cannot expect focus on an invisible misery like headache.
 - (b) *Low literacy:* Low literacy has a direct bearing on the way patients perceive primary headaches and the way they set their expectations and understand treatment plans. Our national literacy level is 59.5% (men 70.2% and women 48.3%). Because migraine is more prevalent in women than in men, and owing to the high level of illiteracy in women, quality-of-life on the basis of work-related functional disability is not easily assessed, hence the estimation of the true burden of migraine is difficult.
 - (c) *Low income:* Despite the fact that India has an emerging middle class of more than 250 million, there are still 350–400 million people living in lower-middle class conditions. So, with basic wants not being fulfilled, it is difficult for patients to seek treatment for their headaches.
 - (d) *Growing urbanization:* Unlike many other countries with a high degree of urbanization, 25% of India's population live in cities and 75% live in rural villages, where proper infrastructural facilities are lacking. Rural areas also have no access to

- specialized care of headache. As India has become more urban, more doctors have moved into cities, and now 70% of physicians paradoxically are based in urban areas.
- (e) *Cultural and social diversity*: India has to deal with major cultural and social differences. There are 24 major languages, with many different traditions, customs, habits, beliefs, all of which have a bearing on the attitude to the seeking of care for headaches. This also makes it difficult for migraine to be perceived and treated in the same way all over the country.
 - (f) *Unusual triggers*: India is located to the north of the equator in the eastern hemisphere and the heat and humidity are conducive to increased frequency and severity of migraine. Some parts of the country can have temperatures of up to 38°C for more than 8 months of the year. The hot and humid weather for most of the year, the increased light and noise levels, the different food triggers, the fasting habits in different communities, the application of henna, stressful school education, and the stress of travel in crowded conditions can all contribute to more frequent headaches that may not respond to medical treatment. Besides the established triggers that are better known, Ravishankar (2006) has described hair-wash or head-bath as an unusual trigger that is not seen in the West.
 - (g) *Inadequacies of the health-care system*: In India, the health-care system is represented by three sectors. The public-health sector is the state-managed free service in which doctors have no scope for ideal headache management particularly in the face of so many other pressing medical problems. The private sector or self-paid care is where patients can expect to get proper treatment for their headaches; however, because of the costs, less than 5% of people in India seek private care. As a result, only the higher strata of society can get their headaches treated correctly. In insurance-funded or managed health care, insurance agencies do not perceive primary headaches as a biological problem needing specific treatment (and sometimes hospitalization). This view not only prevents effective treatment but also wrongly indicates to the community that headache is not a disorder that needs to be taken seriously.
 - (h) *Easy availability of alternative therapies*: Most of the rural population try alternative methods of treatment, such as homeopathy, ayurveda, and unani. There are also unqualified practitioners and local chemists who treat patients unsuccessfully. Failed attempts at treatment only serve to reaffirm the idea that headache is difficult to treat.

Conclusion

To alleviate the burden of headache worldwide, in addition to the application of standard guidelines, we need to (a) focus regionally, (b) change the attitude to headache of both patients and physicians, (c) educate doctors about recent advances, and (d) influence insurance agencies, and improve health-care systems.

Special efforts are therefore needed to tackle the headache problem in India. Awareness and education on headache needs to improve and insurance agencies must recognize headache as a valid biological disorder. We need more tertiary care clinics and lay support groups. The health-care system should be modified to include headache care for all.

In India, there are many other important health problems and so headache is still low on the priority list. But if we address these additional barriers to care, headache burden can be reduced substantially and headache relief can get the priority it deserves.

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