

The Headache Continuum (2000)

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Introduction

The two most common headache presentations are episodic tension-type headache (TTHA) and migraine (MHA). Episodic tension-type headache is almost universally experienced while migraine affects 10-15% of the population. The major distinction between tension-type headache and migraine is, in my opinion, the intensity of the headaches. Tension-type headaches are mild or moderate in intensity while migraine headaches are moderate or severe. Migraine can be associated with nausea and or aura symptoms, but these need not be present.. Similarities between migraine and tension headache have led many authors to consider them to be related entities, hence the concept of a headache continuum with migraine and TTHA occupying different loci on a spectrum has arisen. While many persuasive arguments have been presented, clear proof of similar pathophysiology is lacking. Recently, observations of chronic daily headache characteristics have given support to the continuum theory (1-3).

Chronic Daily Headache

Chronic daily headache refers to the daily, or almost daily, occurrence of headaches for a prolonged period of time. I conducted a study on 258 patients, 50 men and 208 women, who had chronic daily headache (5 days or more per week for at least one year). More than 90% of the patients in the study experienced severe headaches in addition to the daily headaches, and a quarter of the patients experienced severe headaches more than 15 days per month. To me this means that the majority of the patients with this condition, at least of those who seek specialty care for their headaches, do not have chronic tension-type headache, but rather, what has been referred to as tension-type vascular headache (TTVHA). 37% of the patients studied abruptly developed the daily headaches and 63% developed them gradually out of initially intermittent headaches. Of the latter patients, 33% initially experienced mild headaches and 67% severe headaches. The mild headaches were, in 25%, associated with nausea but never with vomiting, while the severe headaches were in 84% associated with nausea and in 72% with vomiting. The mild headaches were, therefore, compatible with the diagnosis of episodic tension-type headache and the severe headaches with migraine. However, the features of the daily headaches that these patients ultimately developed were the same, whether the initial headaches were mild or severe (Table 1).

Table 1. Features of the headaches in the patients with gradual-onset chronic daily headache whose initial headaches were mild versus severe in intensity [1].

			Initial Headaches Mild	Initial Headaches Severe
Gender			(n=37)	(n=75)
	Female		84%	80%
	Male		16%	20%
Diurnal Headache Pattern				
	Time of headache onset		(n=36)	(n=75)
		Awakening/morning	83%	69%
		Awakening/evening	3%	9%
		Variable	14%	22%
	Time of worst headache		(n=33)	(n=67)
		Awakening/morning	39%	18%
		Awakening/evening	39%	55%
		Variable	22%	27%
Nocturnal Headache Awakening			(n=34)	(n=70)
	At least once a week		29%	39%
Associated Symptoms			(n=37)	(n=70)
	Nausea		41%	43%
	Vomiting		8%	13%
Laterality			(n=37)	(n=75)
	Unilateral		32%	48%
	Bilateral		57%	39%
	Uni/bilateral		11%	13%
Occurrence of Severe Headaches			(n=37)	(n=74)
			97%	96%
Associated Symptoms of Severe Headaches			(n=36)	(n=69)
	Nausea		75%	87%
	Vomiting		37%	48%

Frequency of the Severe Headaches(days/month)			(n=29)	(n=62)
	1-5 days/month		35%	31%
	6-10		31%	31%
	11-15		14%	19%
	16-20		3%	8%
	> 20		17%	11%
Laterality of the Severe Headaches			(n=35)	(n=70)
	Unilateral		43%	53%
	Bilateral		49%	33%
	Uni/bilateral		8%	14%

Of the 145 patients who gradually developed the daily headaches out of initially intermittent headaches, 91 could be contacted for follow-up. Of these patients, 23 or 25% still had daily headaches and of the remaining 68 with intermittent headaches, 46 were able to provide enough information to diagnose their initial intermittent headaches. Of these patients, 39, or 85%, initially had migraine and 7, or 15%, initially had tension-type headache. Of the 39 patients who initially had migraine, 77% now also had migraine and 23% tension-type headache. The group of patients who initially had tension-type headache was too small to analyze (n = 7). On the basis of the study, it can be stated that with progression from intermittent to daily headaches, the daily-headache condition is the same whether the initial headaches are tension-type or migraine. With reversal back to intermittent headaches, the majority of the patients who initially had migraine went back to having migraine, a finding also in support of the headache continuum.

Headache Mechanisms

There is ongoing debate with regard to the mechanisms involved in causing the pain of tension-type headache and migraine. It is my belief that peripheral mechanisms, as well as central, are important in both headache presentations. In tension-type headache, the peripheral mechanism is that of sustained contraction of craniocervical muscles and in migraine that of arterial vasodilation. The arterial vasodilation in migraine activates a secondary mechanism, neurogenic inflammation. When migraines occur regularly, they lead, through an involuntary reflex mechanism, to a progressive tightening of the craniocervical muscles. In tension-type headache, the progressive increase in tightness of the craniocervical muscles leads, over time, to an increase in frequency of the headaches. It also leads to a progressive earlier occurrence of the headaches during the day. Ultimately, a daily or almost daily headache condition develops. As long as the headaches remain mild to moderate in intensity, the condition can be referred to as chronic tension-type headache. However, once the headaches have taken up all available time, they often increase in intensity as well to create migraine headaches. Ultimately, the migraine and tension-type headaches merge into a condition of daily or almost daily headaches with frequent migraine headaches. It is the observation of this phenomenon, that is, the progression of either tension-type headache or migraine to tension-type vascular headache, which is the basis of the headache continuum as it is schematically shown in Figure 1. The arrows in the figure indicate the dynamic nature of the headache syndromes on the continuum, that is, episodic and chronic tension-type headache, migraine, and tension-type vascular headache. The arrows are bi-directional reflecting the fact that headaches can progress, that is, move up the hill and ultimately create a daily headache condition, or improve, that is, move down the hill and become intermittent again.

References

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