

TENSION-TYPE HEADACHE: CLINICAL FEATURES

Chapter 77

Symptomatology of Episodic Tension-Type Headaches

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In its milder and infrequent forms, episodic tension-type headache (ETTH) is usually experienced as a normal headache or as a nuisance. In its frequent forms, however, it becomes distressing and socially disturbing, although it rarely incapacitates those affected to the same degree as chronic tension-type headache (CTTH) or migraine. Most previous studies in tension-type headache (TTH) have been performed in specialized headache clinics and have dealt with the chronic form. Patients with the episodic form very rarely consult a specialist and therefore would not be included in such studies. The pattern of TTH seen in general practice is clearly milder and different from that present in patients referred to a specialist, although most sufferers have not even consulted a general practitioner (4,10,27,34,40). In recent years more data from the general population have been published (4,10,27,34,40), demonstrating a large variation in headache pattern in individuals with ETTH. The clinical manifestations of ETTH will be summarized in this chapter. (See also Chapter 67 on epidemiology.)

DIAGNOSIS AND CLASSIFICATION OF EPISODIC TENSION-TYPE HEADACHE

The classification of TTH has changed significantly in the International Classification of Headache Disorders (ICHD)-II (14) as compared to the previous ICHD-I (13). The different types of ETTH included in the classification are shown in Table 77-1.

As can be seen, ETTH is subclassified as infrequent or frequent, with the arbitrary distinction that patients with less than 12 days per year of TTH fall into the infrequent category and patients with greater than or equal to 12 days per year and less than 15 days per month fall into the frequent category. The diagnostic criteria for infrequent and

frequent ETTH are identical, except for criterion A, where the frequency is specified.

Other than the division into infrequent ETTH and frequent ETTH, the basic diagnostic criteria have not changed (Table 77-2). In the ICHD-I classification, ETTH was subdivided into a form with and a form without a muscular factor. In the ICHD-II classification, it has been specified that this subdivision is based only on manual palpation, which is used to determine whether pericranial tenderness is present (Table 77-3).

For headaches resembling ETTH that do not quite fulfill the diagnostic criteria for this disorder, a diagnosis of probable ETTH can be made, either infrequent or frequent. Diagnostic criteria for probable frequent ETTH are given in Table 77-4. It should be noted that if headaches also fulfill the diagnostic criteria for definite (not probable) migraine without aura, they should be coded to that diagnosis, rather than probable ETTH.

CLINICAL PICTURE OF EPISODIC TENSION-TYPE HEADACHE

Most patients with ETTH do not seek medical assistance because their headaches usually are mild in intensity, are relatively short-lasting, lack the migraine-associated incapacitating symptoms of nausea and vomiting, and usually respond to simple analgesics. The clinical picture is therefore not as well described as it is for most other primary headache disorders. Furthermore, the diagnosis of ETTH is also frequently overlooked because most patients in headache clinics focus on their most severe and most recent headaches. In the comparative study by Russell et al., where headache diagnosis from a clinical interview was compared to the diagnosis from a diagnostic prospective headache diary, less than 50% of the patients that actually

TABLE 77-1 Episodic Tension-Type Headache: Headache Types

<p>Infrequent episodic tension-type headache Infrequent episodic tension-type headache associated with pericranial tenderness Infrequent episodic tension-type headache not associated with pericranial tenderness Frequent episodic tension-type headache Frequent episodic tension-type headache associated with pericranial tenderness Frequent episodic tension-type headache not associated with pericranial tenderness</p>

had ETTH during the prospective diary recording period reported such episodes at the clinical interview. In contrast, the vast majority of migraineurs were identified initially (41). As most patients in specialized headache clinics have several coexisting headache disorders, it is necessary to focus on these mild headaches because they comprise a very important differential diagnosis to migraine. They are also probably the main reason for accelerating and inappropriate drug consumption because many patients treat them as mild migraine attacks with antimigraine medications.

The mean duration of ETTH has been reported to be 10.3 years in a German population study (12) and 9 years in a recent clinical study (50). These studies illustrate that TTH is a long-lasting pain disorder and that subjects suffer several years before seeking medical help.

In a recent clinical study of 55 patients from a specialized headache clinic, the median frequency of episodes

TABLE 77-2 Diagnostic Criteria for Frequent Episodic Tension-Type Headache

<p>At least 10 episodes occurring on ≥ 1 but < 15 days per month for at least 3 months (≥ 12 and < 180 days per year) and fulfilling criteria B through D Headache lasting from 30 minutes to 7 days Headache has at least two of the following characteristics: A. Bilateral location B. Pressing/tightening (nonpulsating) quality C. Mild or moderate intensity D. Not aggravated by routine physical activity such as walking or climbing stairs Both of the following: A. No nausea or vomiting (anorexia may occur) B. No more than one of photophobia or phonophobia Not attributed to another disorder¹</p>
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¹History and physical and neurologic examinations do not suggest any of the disorders listed in groups 5–12, or history and/or physical and/or neurologic examinations do suggest such disorder but it is ruled out by appropriate investigations, or such disorder is present but headache does not occur for the first time in close temporal relation to the disorder.

TABLE 77-3 Diagnostic Criteria for Subtypes of Frequent Episodic Tension-Type Headache

<p>Frequent episodic tension-type headache associated with pericranial tenderness Diagnostic criteria: A. Episodes fulfilling criteria A through E for 2.2 Frequent episodic tension-type headache B. Increased pericranial tenderness on manual palpation Frequent episodic tension-type headache not associated with pericranial tenderness Diagnostic criteria: A. Episodes fulfilling criteria A through E for 2.2 Frequent episodic tension-type headache B. No increased pericranial tenderness</p>
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was 6 days per month (50), compared to a median frequency at 2.2 days per month in the general population (12). In another population-based study, which included all TTH, the median number of attacks suffered per year was 6, with a median duration of attacks of 4 hours (32). The impact of frequent ETTH has only rarely been reported, but in epidemiologic studies ETTH accounted mostly for reduced effectiveness whereas 3 workdays were missed per month in the clinical study mentioned above.

In daily clinical practice individuals with infrequent TTH are regarded as headache free, but it is important to emphasize that they are not completely headache-free from a genetic and pathophysiologic point of view. Because of this, they should probably be categorized separately from headache-free subjects in future research.

Duration of each headache episode is also extremely variable, with mean values between 4 and 13 hours and extreme values at 30 minutes to 72 hours (18,20). These values are similar to those from older studies that used less strict criteria (18). The male:female ratio at 4:5 and the highly variable temporal profile within and between patients are additional features that distinguish TTH from migraine (23,33,44,46).

TABLE 77-4 Diagnostic Criteria for Probable Frequent Episodic Tension-Type Headache

<p>Probable frequent episodic tension-type headache Diagnostic criteria: A. Episodes fulfilling all but one of criteria A through D for 2.2 Frequent episodic tension-type headache B. Episodes do not fulfil criteria for 1.1 Migraine without aura C. Not attributed to another disorder</p>
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CLINICAL FEATURES OF TENSION-TYPE HEADACHE AND THE DIAGNOSTIC CRITERIA

It is perhaps a somewhat circular exercise to discuss the clinical symptomatology of a condition that is itself defined primarily by clinical diagnostic criteria. Although this is not unique to ETTH, it is especially important in this condition because TTH is perhaps the least well defined of the primary headache types in the new International Headache Society (IHS) classification (14). ETTH occupies that broad expanse between patients having no headache and patients with mixed headaches also meeting the diagnostic criteria for migraine. Often called "ordinary or common headaches" by patients with migraine who also have some ETTH, ETTH is characterized to a very significant degree by what is not present.

Nevertheless, patients with ETTH do display a spectrum of symptoms and symptom severity, and it is important that the clinical spectrum of ETTH be better defined by clinical research. An attempt has been made to do this by asking adolescents whether their headaches met the following description: "This headache may start gradually and the pain is mild or moderate. The pain is usually located in the whole head or in the neck. It feels like it is tightening or pressing (like a band around the head). I usually have no nausea or vomiting. When I have this headache I can normally keep on with my schoolwork, my homework, and most physical activity." When the diagnosis of TTH was made in this manner and compared with the diagnosis made in the same subjects by neurologist interviews, the sensitivity was 87% and the specificity 88%. The positive predictive value was 83% and the negative predictive value 91%. Therefore, the vast majority of TTH in the 92 young subjects studied fit this classical description of ETTH (51).

CHARACTER OF PAIN

Patients usually describe their pain as a "dull," "nonpulsating" headache, and terms such as a sensation of "tightness," "pressure," or "soreness" are often employed; some patients refer to a "band" or a "cap" compressing their head, while others mention a big "weight" over their head and/or their shoulders (11,51). Several studies confirm this pain quality. In a series of 402 patients, a dull head pain was found in 85% and a "tight heaviness" in 83% (9). The high incidence of a pressing quality was confirmed in later studies; it was present in 78% of 488 subjects with ETTH from the general population (35,36) but only in 52% of 50 patients with ETTH from a prospective diary study (17).

A pulsating character occurs "seldom" or "never" in 80 to 86% of the patients from clinical populations (17,18).

The most frequent pain quality in TTH is thus nonpulsating and pressing, although it may be experienced as periodically pulsating during severe pain episodes in a minority of subjects (37).

SEVERITY OF PAIN

According to the IHS criteria, the pain in ETTH is typically of mild or moderate intensity (13,14). In a population-based study, the pain was mild or moderate in 87 to 99% of subjects with ETTH (37). This corresponds well with the clinical study of Zeeberg et al., where the mean intensity was 1.2 on a 0 to 3 scale (50), and with prospective headache diary studies that analyzed the intensity of pain across several headache episodes (1,17,41).

The severity of TTH increases markedly with increasing frequency, as 76% of subjects with more than 30 days of headache per year report moderate or severe intensity compared to 50% of those with less frequent headache (33,35). These data would appear to confirm the clinical impression that TTH is a graded phenomenon with headache intensity increasing as headache frequency increases. This is in contrast to a migraine attack, which is an all or none phenomenon that runs its course once started (Fig. 77-1).

In a comparison of a group of patients with migraine and a group of patients with ETTH from a headache clinic, the migraine group had a significantly higher mean pain severity, but the difference was not as great as might be expected [mean Visual Analog Study (VAS) score of 0.74 vs. 0.56, respectively] (29). In another study of 16 children ages 7 to 18 referred to a specialty clinic with ETTH, 50% rated their pain as having a severity of 8 or greater on a scale of 10 (42).

In a discussion of pain severity, headache diagnosis, and disability, however, it must be kept in mind that for the primary headache disorders like migraine and ETTH, there is no infallible gold standard for diagnosis. In the Spectrum Study after diary review, 32% of patients with disabling ETTH were reclassified as IHS migraine. Even after careful diary review, however, 63% of the original 75 subjects with disabling ETTH retained their diagnosis of ETTH (25). The conclusion from that study was that disabling ETTH was rare (25,26). However, it seems clear that a significant proportion of ETTH sufferers suffer significant disability as a result of their headache and that some patients may suffer from both TTH and from migraine.

LOCATION

The pain is typically considered to be located bilaterally, and this was reported by 90% of subjects in two Scandinavian population studies (37,51). Nevertheless, pain does

688 *Tension-Type Headaches, Cluster Headaches, and Other Primary Headaches*

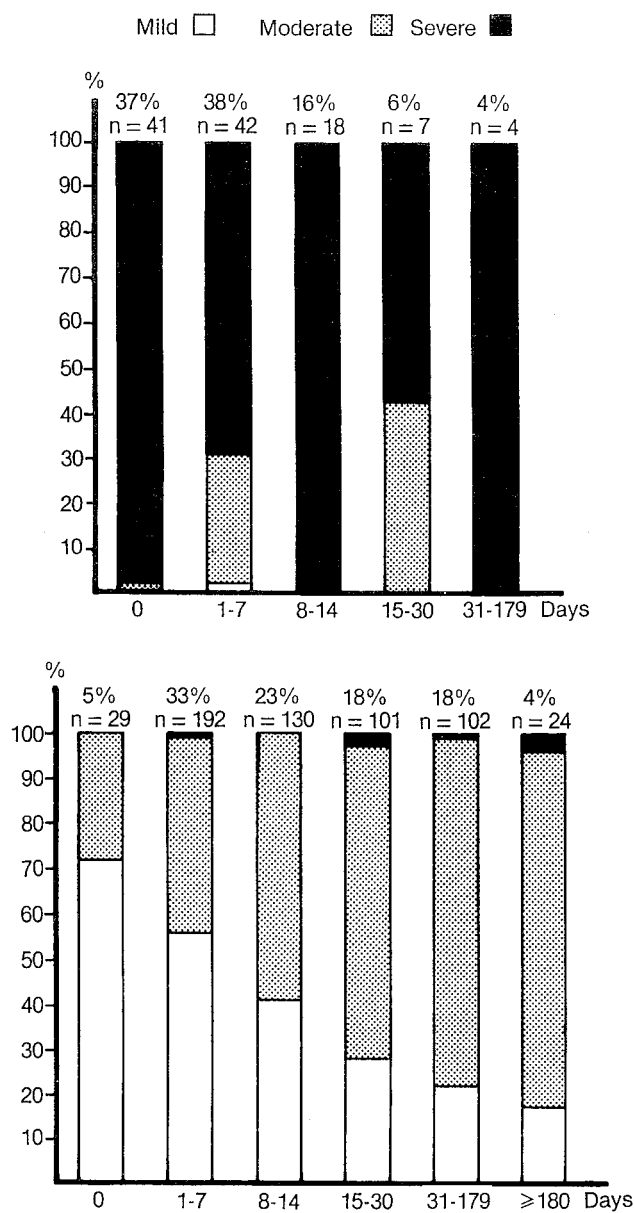


FIGURE 77-1. Pain severity as a function of frequency of tension-type headache and migraine. Open bars indicate mild pain, shaded bars moderate pain, and closed bars severe pain. (Reproduced from ref. 35, with permission.)

not always occur in the same localization; varying pain site associated with varying intensity has been reported in 21% of patients with ETTH (18). A “bandlike” topography including frontal and occipital areas is common (18).

Lack of aggravation of pain by physical activity is typical of TTH. It has been shown to be one of the best pain criteria to distinguish TTH from migraine, as 72% of 488 subjects with the episodic form in one population study (35), 83% in another large population study (46), and 84% in a prospective diary study (37) reported no aggravation

by routine physical activity, in contrast to only 4% of migraineurs (35).

ACCOMPANYING SYMPTOMS

Presence of nausea and vomiting actually rules out the diagnosis of infrequent or frequent ETTH, and yet there are no studies analyzing the frequency of such symptoms in relation to the ICHD-II (14). Nevertheless, 18% of subjects with TTH according to the ICHD-I have reported mild or moderate anorexia during the headache episode (37), and only 2% were excluded due to nausea. It is therefore important to distinguish between nausea and anorexia and identify any eventual accompanying symptoms during the interview so that mild migraines may be identified and separated from ETTH. Photophobia or phonophobia may be present, while presence of both symptoms is not allowed. Mild photophobia was present in 10% and mild phonophobia in 7% of ETTH subjects, although in most subjects their appearance was occasional (37). Nevertheless, the presence of these accompanying symptoms had no influence on the pain characteristics, as not only two but more frequently three or all four pain characteristics were fulfilled in subjects with ETTH irrespective of accompanying symptoms (37). Clinical characteristics of TTH in migraineurs and in nonmigraineurs were compared in a large epidemiologic study of 4000 subjects (46). The 1-year prevalence of TTH and the male:female ratio were similar in migraineurs and in nonmigraineurs, whereas the frequency of TTH attacks was higher and the episodes lasted significantly longer in the migraineurs compared to those that never have had migraine. The pain characteristics and the accompanying symptoms of the episodes of TTH were very similar, and therefore it was concluded that TTH and migraine are separate disorders and not part of a continuum, although they may coexist in many patients (33,46). However, migraine may aggravate or even precipitate TTH, confirming the impression from highly specialized headache clinics where the vast majority of migraine patients have coexisting frequent TTH (5,50).

Despite the differences between migraine and ETTH, it is still proposed by some that the two disorders share a common pathophysiology (25). This relationship appears to be complex in that ETTH in patients without migraine does not appear to respond to sumatriptan, a specific symptomatic migraine treatment (6), whereas ETTH in patients with migraine does show a response to sumatriptan 50 mg given orally both in terms of headache relief at 4 hours and pain free at 2 and 4 hours after treatment (25). One might conclude from this that these patients either have treated possible mild migraines very early or that there is a phenotypical variation among patients. (The relation between TTH and migraine is discussed in Chapters 77 to 79.)

HEADACHE ATTACK PRECIPITANTS AND AGGRAVATING FACTORS

Studies on factors that precipitate headache in individuals with ETTH from headache clinic populations suggest that there is less difference between migraine and ETTH than is often assumed. Stress, lack of sleep, fatigue, and not eating on time are among the most common headache precipitants reported by both migraine patients and those with ETTH (45,46). In one study, smell, light, smoke, and weather changes were reported as headache triggers more commonly by migraineurs as opposed to patients with ETTH (45), but these headache triggers were in fact reported frequently by both headache populations (45,46). Even alcohol and menstruation are reported as headache precipitants by some patients with ETTH (45,46).

Similarly, conditions that are known to commonly aggravate established headache attacks in patients with migraine are also reported as aggravating factors by a significant number of ETTH patients referred to headache centers (45,50). It is therefore clear that the diagnosis of ETTH rests upon a careful consideration of multiple features of a patient's headache syndrome and continuous use of a diagnostic diary, as the diagnosis of coexisting migraine is strongly influenced by the presence of associated features such as nausea, photophobia, and phonophobia (14).

RELATION TO SLEEP

While many chronic headache sufferers complain of insufficient sleep; lack of restoration after sleep; tender, stiff jaw muscles; and severe snoring (7,19,30,31,38,43), there are no formal studies or even clinical reports on the relationship between sleep disorders and ETTH. The very few studies of possible relationships between sleep and TTH have not distinguished between the episodic and the chronic form, so the following refers to TTH in general. In the Danish population study, subjects with TTH had a higher prevalence of sleeping problems as compared to migraineurs (38), whereas a case-control study of children and adolescents reported an equal frequency of sleep disturbance in patients with migraine and TTH (7). Complaints of lack of restoration have also been reported to be positively associated with headache disorders (7,38). These associations may indicate a common underlying causal disorder, but, as the main precipitating factors in TTH are stress and mental tension, sleep may also be an indirect measure of such underlying risk factors. In addition, two very recent polysomnographic studies were unable to demonstrate a relationship between obstructive sleep apnea and headache (30,31). Morning or nocturnal headaches are normally considered to indicate a sleep disturbance (30,31,43), but a very careful evaluation to exclude secondary headaches, especially medication-overuse

headache, is needed in patients with these symptoms (see Chapter 67 on differential diagnosis to TTH).

Lack of sleep is frequently reported as a precipitating factor for headache (7,38,45). Headache of tension type occurred in one-third of healthy volunteers after sleep deprivation (45). The possible mechanism of sleep-related headache is also discussed in Chapter 135 on headache and sleep.

DIURNAL AND SEASONAL VARIATIONS

TTH is often reported to start at some time during the day and to increase slowly, but no focused studies of properly classified patients have yet confirmed this assumption. In the most severe and frequent forms the patients often awaken with the headache or notice it shortly after getting up. The headache then remains throughout the day, often unaltered during widely varying activities. In such patients a disturbed sleep pattern and/or analgesic overuse should be considered and ruled out.

No conclusive studies or even clinical reports of seasonal variation in the frequency or intensity of ETTH have been reported. Since one of the significant precipitating factors in TTH is weather changes (38,45), seasonal variations would be very likely, and more research is clearly needed.

PHYSICAL EXAMINATION

The diagnosis of TTH requires exclusion of **other** causative disorders. Therefore, it is mandatory to base the diagnosis on an extensive history of the evolution of the patient's pain and other symptoms and on a careful physical and neurologic examination. The physical examination should include manual palpation of the pericranial muscles to identify tender points and trigger points. Tender points are areas where manual pressure induces local pain, and trigger points are areas of localized deep tenderness where sustained pressure also induces referred pain in another area in the region. They probably represent different intensities of the same pathogenic mechanism with local tenderness as a common feature.

At a minimum, pericranial tenderness should be assessed by manual palpation of the temporal, lateral pterygoid, masseter, sternocleidomastoid, and trapezius muscles. The muscle insertion areas, such as the mastoid process, and the neck muscle insertions should also be palpated.

Palpation should be done symmetrically and systematically using small rotating movements with the second and third fingers followed by unilateral examination for a better side-to-side comparison. In each area, a

690 *Tension-Type Headaches, Cluster Headaches, and Other Primary Headaches*

semiquantitative tenderness score from 0 to 3 can be estimated based on the verbal and nonverbal reaction of the patient (2,3), and a total sum of the individual scores can be calculated for a Total Tenderness Score (TTS). This method was reliable with the same observer, whereas comparison between observers may vary according to the applied pressure (2). When part of a research project, the palpation procedure should be blind and standardized and the pressure intensity should be controlled (2). In daily routine practice a standardized procedure is also recommended so the physician can better develop his or her ability to distinguish normal and abnormal conditions.

Pain sensitivity assessed by pressure algometer and electromyogram (EMG) recordings has been widely used in research but plays no role in routine practice and has now been omitted from the ICHD-II (14).

Findings in Headache Patients

When pericranial muscle tenderness is examined by manual palpation and pressure algometer in a general population, pain sensitivity is greater in females than in males and pain sensitivity decreases with increasing age (21,22). In patients with TTH, increased tenderness in pericranial muscles is the most consistent abnormal finding and increases with increasing frequency and intensity of TTH (22). Subjects with the episodic form have increased TTS scores compared to migraineurs and healthy controls but are less tender than subjects with CTTH (21,22).

In clinical studies it is therefore fundamental to control for usual frequency of headache, location, age, and sex differences. It is also very important to emphasize whether the muscle examination is performed during an actual episode of headache or in a headache-free episode, because tenderness increases by 24% during an actual headache episode as compared to the headache-free interval (20).

The cervical spine should be examined for restricted and painful movements and the paravertebral muscles should be examined for tender points (24,48,52). Cervical radiologic examination cannot be recommended unless local pathology is suspected clinically, as the prevalence of organic cervical spine lesions in TTH is equivalent to other headache disorders (47). See Chapter 79, Differential Diagnosis and Prognosis of Tension-Type Headaches, for a discussion of laboratory investigations in headache.

SUBDIVISIONS OF EPISODIC TENSION-TYPE HEADACHE

The determination of a possible muscular factor in TTH was defined in the ICHD-I as muscle tenderness recorded by manual palpation or by pressure algometer or abnor-

mal EMG levels (14). Only a minority of frequent headache sufferers are completely free of tenderness, but these have otherwise identical headache symptomatology. Very few clinical studies have actually studied pericranial tenderness in ETTH patients. In the Danish population study, 65% of subjects with ETTH had increased tenderness by manual palpation (21).

As manual palpation was by far the most sensitive and specific test for pericranial tenderness as compared to pressure pain thresholds recorded by pressure algometry and EMG, the subdivision to third digit classification with and without muscular disorder is kept in the ICHD-II but is based on the results of manual palpation only.

POSSIBLE CAUSATIVE AND PRECIPITATING FACTORS

The most likely causative factors for TTH were listed as the fourth digit codes in ICHD-I but due to lack of evidence they are omitted from the ICHD-II. They may represent a wide variety of potential causes but are not specific for TTH.

TTH is generally reported to occur in relation to emotional conflict and psychosocial stress but the cause-effect relation is still unclear. In most studies, stress and mental tension were the most frequently reported precipitating factors but occurred with similar frequency in TTH and migraine (38,45,46). These results are in keeping with the findings of largely normal personality profiles in subjects with ETTH in population studies (28,39) and also in large clinical studies, where the most important predictor for depression and psychopathology was chronicity (8,49). In sum, some of the psychosocial and personality factors suspected in the past to cause headache may therefore be the result of specific coping strategies or the result of recurrent pain rather than the primary cause of the headache. In a controlled study, Holroyd et al. reported that a number of personality factors such as depression, anxiety, and somatization, which were highly abnormal during ongoing pain, normalized again when patients were retested outside the pain period (15,16). In general, psychologic abnormalities in ETTH sufferers may therefore be viewed as secondary to headache. The relation of oromandibular dysfunction and TTH has been described in Chapter 73. Other possible causative factors are medication overuse and organic factors, listed under The Secondary Headaches in Part 3. The possible psychologic and psychiatric causative factors are defined according to the DSM-III criteria.

In conclusion, infrequent and frequent ETTH represents a wide variety of frequency and intensity, not only between subjects, but also within the individual subject over time. Because most cases of CTTH have evolved from the episodic forms, it is very important to study the

evolution of TTH over time and try to identify risk factors for chronicity. Whether early intervention may prevent development of CTTH is yet unknown and longitudinal studies are needed. Nevertheless, identification of frequent ETTH is very important in the patient with coexisting migraine as a specific diagnosis and is mandatory for specific treatment. Careful diagnosis and management of these patients has the potential to significantly reduce the frequency of drug-induced headache.

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692 Tension-Type Headaches, Cluster Headaches, and Other Primary Headaches

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