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International Classification of Sleep Disorders-Third Edition

Highlights and Modifications

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The recently released third edition of the *International Classification of Sleep Disorders* (ICSD) is a fully revised version of the American Academy of Sleep Medicine's manual of sleep disorders nosology, published in cooperation with international sleep societies. It is the key reference work for the diagnosis of sleep disorders. The ICSD-3 is built on the same basic outline as the ICSD-2, identifying seven major categories that include insomnia disorders, sleep-related breathing disorders, central disorders of hypersomnolence, circadian rhythm sleep-wake disorders, sleep-related movement disorders, parasomnias, and other sleep disorders. Significant modifications have been made to the nosology of insomnia, narcolepsy, and parasomnias. Major features and changes of the manual are reviewed in this article. The rationales for these changes are also discussed. CHEST 2014; 146(5):1387-1394

ABBREVIATIONS: AASM = American Academy of Sleep Medicine; CRSWD = circadian rhythm sleep-wake disorder; CSA = central sleep apnea; CSB = Cheyne-Stokes breathing; ICD = *International Classification of Diseases*; ICSD = *International Classification of Sleep Disorders*; IH = idiopathic hypersomnia; MSLT = multiple sleep latency test; NREM = non-rapid eye movement; OCST = out-of-center sleep testing; PAP = positive airway pressure; PLM = periodic limb movement; PLMD = periodic limb movement disorder; PSG = polysomnogram; RBD = rapid eye movement sleep behavior disorder; REM = rapid eye movement; RLS = restless legs syndrome; SOREMP = sleep-onset rapid eye movement period

The recent publication of the third edition of the *International Classification of Sleep Disorders* (ICSD)[1] represents another step forward in the evolution of sleep disorders nosology. ICSD-3 builds on the basic foundation of ICSD-2, retaining the same major diagnostic sections of that manual (Table 1). The preparation of the classification system included extensive literature reviews for each diagnosis, as well as for major associated features. The text was fully revised, and additional text headings (eg, Developmental Features) and coding recommendations were added.

Several key considerations apply to all diagnoses within ICSD-3. Although the criteria for each diagnosis have been reviewed and revised carefully to be as sensitive and specific to the disorder as possible, the reality is that there is much still unknown about the classification of these disorders. This is particularly true with respect to the degree of disturbance required to achieve clinical significance and the most effective metrics for determining this. As a result of these shortcomings, physicians

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TABLE 1] ICSD-3 Major Diagnostic Sections

Section
Insomnia
Sleep-related breathing disorders
Central disorders of hypersomnolence
Circadian rhythm sleep-wake disorders
Parasomnias
Sleep-related movement disorders
Other sleep disorders

ICSD = *International Classification of Sleep Disorders*.

must allow some room for judgment in the application of these criteria. In general, unless otherwise specified, all criteria must be met to establish a diagnosis. However, there are undoubtedly individuals with clinically significant sleep disorders who do not meet all the criteria for a given diagnosis. In such cases, provisional diagnoses with careful follow-up and retesting may be in order. Application of the criteria should be guided by the notes that follow many of the criteria sections.

As with ICSD-2, pediatric diagnoses are not distinguished from adult diagnoses, with the exception of pediatric OSA. ICSD-3 consistently refers to the *AASM [American Academy of Sleep Medicine] Manual for the Scoring of Sleep and Associated Events*[2] for definitions of specific polysomnogram (PSG) findings (eg, respiratory events or movement abnormalities). This will allow up-to-date accuracy of definitions as scoring rules evolve prior to the next ICSD publication.

Finally, the ICSD-3 provides specific coding information for each diagnosis. The *International Classification of Diseases* (ICD)[3] coding system for the United States (clinical modification version) is in transition from the ninth to the 10th edition at the time of this writing. Therefore, both *International Classification of Diseases*, *Ninth Revision*, *Clinical Modification* and *International Classification of Diseases*, *Tenth Revision*, *Clinical Modification* codes are included. Because ICD system changes inevitably lag behind changes to the ICSD, users will note certain discrepancies between the systems in the coding approach for various diagnoses. The ICD codes listed in ICSD-3 represent the best approximations within the confines of the system.

Insomnia

The classification of insomnia disorders in ICSD-3 represents a marked departure from that of prior systems. Historically, insomnia disorders have been dichotomized in several ways that relate to duration and presumed pathophysiology. The distinction of acute and chronic insomnia has existed in most diagnostic systems since the inception of sleep-wake disorders nosology. The ICD system has, at least through its 10th edition, clung to the now-archaic distinction of "organic" vs "nonorganic" insomnia (ie, psychogenic). ICSD-1, ICSD-2, and the *Diagnostic and Statistical Manual of Mental Disorders*[4] (through the fourth edition) have used the familiar primary vs secondary (or comorbid) insomnia distinction. ICSD-1 and ICSD-2 further subtyped primary insomnia into psychophysiologic, idiopathic, and paradoxical (sleep-state misperception) insomnia disorders. However, these approaches to classification, especially the primary vs secondary (comorbid) distinction, have been challenged.

The 2005 National Institutes of Health Consensus Panel on Manifestations and Management of Chronic Insomnia in Adults[5] noted that considerable uncertainty exists with respect to the "nature of (the) associations and the direction of causality" in cases of comorbid insomnia. Furthermore, the panel noted that an emphasis on the "secondary" nature of many insomnia disorders may promote inadequate treatment (presumably as a result of an assumption on the part of physicians that treatment of the "primary" condition is sufficient to resolve the insomnia condition). Beyond these considerations, other concerns have been registered. It has been clear for some time that the vast majority of chronic insomnia conditions (if not all) share numerous characteristics, regardless of their "primary" vs "comorbid" status. Specifically, chronic insomnia disorders as a whole are typically associated with maladaptive cognitions and behaviors that represent major perpetuating factors. These factors must be addressed therapeutically to achieve a successful long-term outcome. Beyond the clearly important management of comorbid disorders such as major depression or chronic pain, treatment approaches to chronic insomnia are essentially the same (ie, cognitive-behavioral and/or pharmacologic), regardless of the presence or type of comorbidity. Finally, the diagnostic reliability and validity of insomnia diagnoses, especially primary insomnia, have been challenged on the basis of several studies.[6,7]

In light of the concerns raised by these issues, the ICSD-3 task force elected to consolidate all insomnia diagnoses (ie, "primary" and "comorbid") under a single, chronic insomnia disorder. This decision is not intended to suggest that there may not be important

pathophysiologic differences among chronic insomnia subtypes. Rather, it is the recognition that we are not yet able to reliably make such distinctions nor to translate them into more customized therapeutic approaches. The insomnia diagnoses for ICSD-3 are listed in Table 2.

Chronic Insomnia Disorder

The criteria for this diagnosis are largely congruent with those of the general criteria for an insomnia disorder found in ICSD-2. They include (1) a report of sleep initiation or maintenance problems, (2) adequate opportunity and circumstances to sleep, and (3) daytime consequences. The ICSD-3 duration criterion for chronic insomnia disorder is 3 months, and a frequency criterion (at least three times per week) has been added.

It is also important to note that behavioral insomnia of childhood is included within the chronic insomnia disorder diagnosis. The unique aspects of presentation in children (specifically, limit-setting and sleep-onset association issues) are discussed within the text.

Not every patient with poor sleep merits an independent insomnia diagnosis. Many individuals experience what would reasonably be considered poor sleep but have no complaint and/or do not experience significant daytime consequences. Moreover, insomnia is an expected aspect of many medical and psychiatric conditions. A diagnosis of chronic insomnia disorder should be used only when the insomnia is especially prominent or unexpectedly prolonged, and is the focus of clinical evaluation and treatment.

Sleep-Related Breathing Disorders

Sleep-related breathing disorders are divided into four sections: OSAs, central sleep apnea (CSA) syndromes, sleep-related hypoventilation disorders, and sleep-related hypoxemia disorder. The full listing of diagnoses can be found in Table 3.

OSA (Adult)

The core criteria for a diagnosis of OSA are largely unchanged from ICSD-2. The diagnosis requires either signs/symptoms (eg, associated sleepiness, fatigue, insomnia, snoring, subjective nocturnal respiratory disturbance, or observed apnea) or associated medical or psychiatric disorder (ie, hypertension, coronary artery disease, atrial fibrillation, congestive heart failure, stroke, diabetes, cognitive dysfunction, or mood disorder) coupled with five or more predominantly obstructive respiratory events (obstructive and mixed apneas, hypopneas, or respiratory effort-related arousals, as defined by the AASM scoring manual) per hour of sleep during PSG. Alternatively, a frequency of obstructive respiratory events $\geq$ 15/h satisfies the criteria, even in the absence of associated symptoms or disorders. The most significant change from ICSD-2 is that a respiratory event index (based on hours of monitoring time) may be derived from out-of-center sleep testing (OCST). The same criterion frequencies of breathing disturbance apply when OCST is used, although OCST often underestimates frequency because recording time, rather than sleep time, becomes the denominator for calculation of the index.

TABLE 2] Insomnia

Disorder
Chronic insomnia disorder
Short-term insomnia disorder
Other insomnia disorder

TABLE 3] Sleep-Related Breathing Disorders

Disorder
OSA disorders
OSA, adult
OSA, pediatric
Central sleep apnea syndromes
Central sleep apnea with Cheyne-Stokes breathing
Central sleep apnea due to a medical disorder without Cheyne-Stokes breathing
Central sleep apnea due to high altitude periodic breathing
Central sleep apnea due to a medication or substance
Primary central sleep apnea
Primary central sleep apnea of infancy
Primary central sleep apnea of prematurity
Treatment-emergent central sleep apnea
Sleep-related hypoventilation disorders
Obesity hypoventilation syndrome
Congenital central alveolar hypoventilation syndrome
Late-onset central hypoventilation with hypothalamic dysfunction
Idiopathic central alveolar hypoventilation
Sleep-related hypoventilation due to a medication or substance
Sleep-related hypoventilation due to a medical disorder
Sleep-related hypoxemia disorder

Although not substantially different from ICSD-2 regarding what qualifies as a "respiratory event," ICSD-3 emphasizes that obstructive respiratory disturbance includes not only obstructive apnea and hypopnea but also respiratory effort-related arousal. The term upper airway resistance syndrome is discouraged because this represents a variant of OSA and does not require distinct nomenclature. As has been the case for some time, Medicare standards of qualification for treatment differ from the ICSD criteria when arousal-based scoring of hypopneas is used. As noted previously, the ICSD refers to the current version of the *AASM Manual for the Scoring of Sleep and Associated Events* for definitions of respiratory events and all other specific physiologic events during sleep.

OSA (Pediatric)

The criteria for pediatric OSA have been simplified in the ICSD-3. Signs and symptoms are consolidated into a single criterion. One of these findings (snoring, labored/obstructed breathing, or daytime consequences [sleepiness, hyperactivity, and so forth]) must be present. The PSG criterion for diagnosis requires either (1) one or more obstructive events (obstructive or mixed apnea or obstructive hypopnea) per hour of sleep or (2) obstructive hypoventilation, manifested by $Paco_2 > 50$ mm Hg for $> 25\%$ of sleep time, coupled with snoring, paradoxical thoracoabdominal movement, or flattening of the nasal airway pressure waveform.

CSA Syndromes

The major change in this section of ICSD-3 is the addition of treatment-emergent CSA. This diagnosis corresponds to what has been termed "complex sleep apnea." However, the definition of complex sleep apnea in published studies has varied. Although all definitions have included a requirement of persistent or residual CSA following effective treatment of OSA, there has been substantial discrepancy regarding the nature of the CSA. Some studies include patients with CSA with Cheyne-Stokes breathing (CSB) and substance-induced CSA, whereas others specifically exclude such patients.[8] As a result, the term "complex sleep apnea" lacks specificity. For this reason, new terminology, "treatment-emergent central sleep apnea," is used in ICSD-3. The criteria for this disorder require demonstration of predominately OSA (five or more obstructive respiratory events per hour of sleep) followed by significant resolution of the obstructive apnea and emergence or persistence of CSA (not caused by another identifiable comorbidity such as CSB or substance) during PSG with positive airway pressure (PAP) without backup rate. For cases in which the CSA is attributable to other causes, dual diagnoses of OSA and CSA with CSB or CSA due to substance should be made.

Caution is advised in establishing a diagnosis of treatment-emergent CSA. It is well recognized that there are substantial numbers of patients with central apneic events during PAP titrations that resolve over time once PAP is well established.

Sleep-Related Hypoventilation Disorders

Hypoventilation, as defined by the most recent version of the AASM scoring manual, is the hallmark of these conditions. ICSD-2 lumped sleep-related hypoventilation and hypoxemia into a single category, allowing physicians to infer the diagnosis on the basis of sustained declines in arterial oxygen saturation during PSG. This practice, however, is not altogether accurate or reliable, because hypoventilation, strictly speaking, is defined by the elevation of arterial CO_2 and there are potential causes of sustained hypoxemia other than hypoventilation. Therefore, the criteria for sleep-related hypoventilation now explicitly require demonstration of elevated Pco_2 levels, either by direct determination with arterial blood gases or, more commonly, by proxy measures such as end-tidal or transcutaneous CO_2. When sustained drops in arterial oxygen saturation ($\leq 88\%$ for > 5 min) are seen in the absence of CO_2 measurement, the now separate diagnosis of sleep-related hypoxemia disorder should be used.

Obesity hypoventilation syndrome has been added as a distinct hypoventilation diagnosis in the ICSD-3 primarily because it is so frequently encountered in clinical practice. The condition is commonly comorbid with other sleep-related breathing disorders and requires careful consideration in the formulation of a comprehensive therapeutic approach to breathing disturbances. However, in contrast to other sleep-related hypoventilation disorders, an obesity hypoventilation diagnosis requires demonstration of elevated daytime $Paco_2$ (> 45 mm Hg), in addition to BMI > 30. Patients with other forms of sleep-related hypoventilation may or may not exhibit daytime hypoventilation.

Central Disorders of Hypersomnolence

These disorders are characterized by excessive daytime sleepiness (hypersomnolence) that is not attributable to another sleep disorder, specifically those that result in disturbed sleep (eg, sleep-related breathing disorders) or abnormalities of circadian rhythm. The central

disorders of hypersomnolence are often caused by intrinsic CNS abnormalities in control of sleep-wake, although other medical conditions or substances may account for the hypersomnolence. Behaviorally induced insufficient sleep is also included in this group of disorders. Specific diagnoses are listed in Table 4 and are discussed later.

All these disorders have in common a subjective complaint of excessive sleepiness. ICSD-3 defines this as "daily episodes of an irrepressible need to sleep or daytime lapses into sleep." For those disorders, such as narcolepsy and idiopathic hypersomnia (IH), which require demonstration of objective sleepiness by the multiple sleep latency test (MSLT), a mean sleep latency of $<$ 8 min on the MSLT is required. This criterion is unchanged from the ICSD-2 and represents the best compromise between sensitivity and specificity.[9,10] However, physicians must recognize that there is substantial overlap between pathologically sleepy individuals and "normal" (often sleep-deprived) persons. Therefore, in establishing a diagnosis of a central disorder of hypersomnolence, physicians must be keenly aware that sleep deprivation, especially in those with longer sleep requirements, may account for abnormal MSLT results.[11] The use of sleep logs and actigraphy for at least 1 week prior to MSLT is strongly encouraged to rule out insufficient sleep, sleep-wake schedule disturbances, or both as potential explanations for abnormal MSLT findings. Limited data suggest that one-off subjective reports and sleep logs alone may significantly overestimate total sleep time in the days prior to MSLT.[12] Conversely, some patients with legitimate central hypersomnolence conditions may not consistently demonstrate mean MSLT latencies of $<$ 8 min.[13] Clinical judgment is required in such cases. Repeat MSLT at a later date may confirm objective sleepiness.

TABLE 4] Central Disorders of Hypersomnolence

Disorder
Narcolepsy type 1
Narcolepsy type 2
Idiopathic hypersomnia
Kleine-Levin syndrome
Hypersomnia due to a medical disorder
Hypersomnia due to a medication or substance
Hypersomnia associated with a psychiatric disorder
Insufficient sleep syndrome

Narcolepsy

Narcolepsy has historically been subdivided into narcolepsy with and without cataplexy. This symptom-based approach was sensible prior to the identification of a definitive cause for what has been termed "narcolepsy with cataplexy." However, establishment of hypocretin deficiency as the cause of this disorder[14] has rendered the "with cataplexy" terminology problematic. A small, but not insignificant, population of patients with clear hypocretin deficiency do not manifest cataplexy at the time of diagnosis,[15] although some will eventually do so. Therefore, a new approach to the subdivision of narcolepsy is required. For this reason, the terminology of ICSD-3 has been changed to "narcolepsy type 1" and "narcolepsy type 2." Although hypocretin deficiency is the hallmark of narcolepsy type 1, the relative unavailability of hypocretin assays to date results, to a great extent, in continued dependence on the identification of cataplexy to establish a narcolepsy type 1 diagnosis.

In addition to a subjective complaint of sleepiness, narcolepsy type 1 may be diagnosed by the demonstration of either cerebrospinal fluid hypocretin-1 deficiency ($<$ 110 pg/mL or less than one-third of the normative values with the same standardized assay) or a mean latency of $<$ 8 min on MSLT, with evidence of sleep-onset rapid eye movement periods (SOREMPs) and clear cataplexy (defined as "more than one episode of generally brief [$<$ 2 min], usually bilaterally symmetrical, sudden loss of muscle tone with retained consciousness"). Recent evidence suggests that a SOREMP ($<$ 15 min) on the preceding overnight PSG is highly specific for a diagnosis of narcolepsy (although it lacks sensitivity) and shows significant positive predictive value.[16] Therefore, the MSLT criteria of ICSD-3 for both types of narcolepsy include a requirement of either two SOREMPs on MLST, or a SOREMP on the PSG coupled with at least one SOREMP on the MSLT.

Narcolepsy type 2 maintains the same MSLT requirements of a mean latency $<$ 8 min and two SOREMPs (or one SOREMP on PSG and one or more on MSLT). Cataplexy must be absent and cerebrospinal fluid hypocretin-1 levels, if measured, must not meet the narcolepsy type 1 criterion.

Idiopathic Hypersomnia

The diagnosis of IH has long been problematic. Clearly, there is a group of individuals with significant daytime sleepiness that cannot be explained by another condition despite comprehensive evaluation. It is not clear to what

extent patients with IH represent a cohesive group whose sleepiness is caused by a single, definable CNS pathology, as opposed to a diverse population with varied causes of their hypersomnolence. As noted previously, sleep deprivation can easily be overlooked as a potential cause for sleepiness, especially in those with longer sleep requirements, when adequate pre-MSLT monitoring is not conducted. A trial of sleep extension may be the only reliable methodology for identifying this causation, although this can be surprisingly difficult to accomplish in the routine clinical setting. The core criteria for IH remain largely unchanged; that is, a report of subjective sleepiness, MSLT showing a mean latency of <8 min with fewer that two SOREMPs (including any SOREMP on the PSG from the preceding night), absence of cataplexy and hypocretin deficiency (if measured), and no other identifiable cause. Some patients may present with long sleep times as a primary manifestation of their IH. Therefore, in patients who do not meet the objective MSLT criterion for sleepiness, 24-h PSG or 1-week actigraphy/sleep logs with unrestricted sleep may be pursued. Demonstration of ≥ 660 min average daily sleep time in adults satisfies the criterion for objective sleepiness in lieu of the MSLT findings.[13]

The ICSD-2 subdivided IH into conditions with and without a long sleep time. However, further analysis of the data related to this dichotomy was deemed insufficient to support the continuation of this division.

Circadian Rhythm Sleep-Wake Disorders

The nomenclature for these disorders has been changed to "sleep-wake" to underscore that the physiologic alterations associated with these conditions are evident throughout the 24-h cycle. The diagnoses included in this section are the same as those in ICSD-2 (Table 5). The criteria for these diagnoses are also much the same. Physicians are more strongly encouraged to consider the use of actigraphy and biomarkers such as dim-light melatonin onset in establishing a circadian rhythm sleep-wake disorder (CRSWD) diagnosis,[17] although these are not required to meet the criteria for any diagnosis. The use of questionnaires such as the Morningness-Eveningness Questionnaire[18] to identify chronotype is also encouraged. As in ICSD-2, a general set of criteria applies to all CRSWDs. These include (1) a chronic or recurrent pattern of sleep-wake rhythm disruption primarily caused by an alteration in the endogenous circadian timing system or misalignment between the endogenous circadian rhythm and the sleep-wake schedule desired or required, (2) a sleep-wake disturbance (ie, insomnia or excessive sleepiness, and (3) associated distress or impairment. For all CRSWDs, with the exception of jet lag disorder, a duration criterion of at least 3 months has been added.

TABLE 5] Circadian Rhythm Sleep-Wake Disorders

Disorder
Delayed sleep-wake phase disorder
Advanced sleep-wake phase disorder
Irregular sleep-wake rhythm disorder
Non-24-h sleep-wake rhythm disorder
Shift work disorder
Jet lag disorder
Circadian sleep-wake disorder not otherwise specified

Parasomnias

The parasomnias are divided onto three clusters: non-rapid eye movement (NREM) related, rapid eye movement (REM) related, and other (Table 6).

Disorders of Arousal From NREM

The NREM group includes confusional arousal, sleepwalking, and sleep terrors. Sleep-related eating disorder has now been included with the NREM group as well, because it has many features in common with these disorders. ICSD-2 addressed the arousal disorders as separate diagnoses. In light of the great similarity in

TABLE 6] Parasomnias

Disorder
NREM-related parasomnias
Confusional arousals
Sleepwalking
Sleep terrors
Sleep-related eating disorder
REM-related parasomnias
REM sleep behavior disorder
Recurrent isolated sleep paralysis
Nightmare disorder
Other parasomnias
Exploding head syndrome
Sleep-related hallucinations
Sleep enuresis
Parasomnia due to a medical disorder
Parasomnia due to a medication or substance
Parasomnia, unspecified

NREM = non-rapid eye movement; REM = rapid eye movement.

pathophysiology, demographics, and course, sleepwalking, terrors, and confusional arousal are now addressed within a single section. The general criteria for disorders of arousal include (1) recurrent episodes of incomplete awakening, (2) absent or inappropriate responsiveness, (3) limited or no cognition or dream report, and (4) partial or complete amnesia for the episode. The three subtypes maintain distinct diagnostic codes, and additional criteria are elaborated for each of the three manifestations of partial arousal. A common text section addresses all three disorders, with distinguishing factors contained within this text. These disorders frequently overlap and it is not unusual for patients to meet the criteria for more than one of these conditions.

REM-related parasomnias include REM sleep behavior disorder (RBD), nightmare disorder, and recurrent isolated sleep paralysis. These disorders occur as a consequence of state disassociation between REM sleep and wake (in the case of RBD and recurrent sleep paralysis) or disturbed cognitive-emotional regulation arising from REM (in the case of nightmares). In contrast to the arousal disorders, which, for the most part, occur in otherwise healthy individuals, in many cases RBD and nightmares arise from serious neuropathology (RBD) or psychopathology (nightmare disorder).

REM Sleep Behavior Disorder

The criteria for RBD have been somewhat simplified. They require (1) repeated episodes of behavior or vocalization that are either documented by PSG to arise from RÉM or are presumed to arise from REM based on reports of dream enactment, and (2) evidence of REM sleep without atonia on PSG (as defined in the scoring manual). When REM sleep without atonia is not observed, the diagnosis may be given on a provisional basis when other clinical findings are strongly suggestive.

Dream enactment behavior may also be observed in association with other sleep disorders such as narcolepsy,[19] as well as with certain medications,[20] most notably the selective serotonin or serotonin-norepinephrine reuptake inhibitors. The relationship between medication-induced RBD and other forms is unclear, and the risk of development of neuropathology in that population is undetermined. When RBD is believed to occur as a result of medication use, a diagnosis of RBD should still be used (as opposed to parasomnia due to medication or substance), provided all criteria are met.

Sleep-Related Movement Disorders

These conditions (Table 7) are characterized by simple, often stereotyped movements occurring during sleep. In the case of restless legs syndrome (RLS), a waking dysesthesia is the predominant symptom, although repetitive limb movement during sleep is often observed in association with RLS.

Restless Legs Syndrome

The criteria for RLS reflect the International Restless Legs Syndrome Study Group[21] criteria with one important distinction, as discussed later. Both criteria sets are based on an urge to move the legs, sometimes accompanied by an uncomfortable sensation that (1) occurs primarily with rest/inactivity; (2) is partially or totally relieved by movement, for as long as the movement occurs; and (3) occurs primarily in the evening or night. Given the somewhat indescribable nature of the symptoms, both criteria sets emphasize the importance of ruling out other disorders, the symptoms of which may mimic those of RLS (eg, arthritis, leg cramps, and myalgias). The ICSD-3 criteria differ from those of the International Restless Legs Syndrome Study Group in that distress, associated sleep disturbance, or impairment is required to establish the ICSD diagnosis. This difference is predicated on the concept that, although researchers may wish to include the entire population of individuals who manifest any degree of the physical symptoms for study purposes, a true clinical disorder should include some form of adverse consequence(s). Many individuals, when queried, will acknowledge the presence of infrequent and/or milder forms of RLS but have no associated complaint. These individuals should not receive an ICSD-3 diagnosis of RLS.

TABLE 7] Sleep-Related Movement Disorders

Disorder
Restless legs syndrome
Periodic limb movement disorder
Sleep-related leg cramps
Sleep-related bruxism
Sleep-related rhythmic movement disorder
Benign sleep myoclonus of infancy
Propriospinal myoclonus at sleep onset
Sleep-related movement disorder due to a medical disorder
Sleep-related movement disorder due to a medication or substance
Sleep-related movement disorder, unspecified

The manual notes that RLS may be precipitated or worsened by medications, particularly many antidepressants. However, when the full criteria for a movement disorder such as RLS or periodic limb movement disorder (PLMD) are met, those diagnoses, rather than movement disorder due to medication or substance, should be used.

The separate criteria set for the diagnosis of RLS in children, found in ICSD-2, has been eliminated. Pediatric diagnostic considerations are discussed in the ICSD-3 developmental section of RLS.[22]

Periodic Limb Movement Disorder

As in ICSD-2, PLMD may be diagnosed when the frequency of limb movement, as defined by the AASM scoring manual, is > 15/h in adults (> 5/h in children). The periodic limb movements (PLMs) must be accompanied by sleep disturbance or other functional impairment to establish this diagnosis. Uncertainty has existed regarding the relationship between PLMs and sleep-wake symptoms (particularly excessive sleepiness). Although PLMs are a not uncommon finding on PSG, the presence of PLMs and a sleep disturbance are not sufficient to establish this diagnosis; reasonable evidence of a cause and effect relationship between the two findings must be established. It should also be noted that a diagnosis of PLMD should not be used in conjunction with diagnoses of RLS, narcolepsy, RBD, or untreated OSA, because the movement disturbance is a common finding in these disorders.

Summary

ICSD-3 includes seven major categories of sleep disorders: insomnia, sleep-related breathing disorders, central disorders of hypersomnolence, CRSWDs, sleep-related movement disorders, parasomnias, and other sleep disorders. Key changes from ICSD-2 include the consolidation of chronic insomnia into a single disorder, the division of narcolepsy into types 1 and 2, and the addition of a treatment-emergent CSA diagnosis. Diagnostic criteria have been revised for many disorders. It is essential for sleep medicine physicians and other providers to familiarize themselves with these changes.

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