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The treatment of hypnotic dependent sleep disorder: A case study

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Hypnotic Dependent Insomnia in an Older Adult With Addiction-Prone Personality

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Abstract: Despite the proliferation of safe, effective, and cost-effective behavioral treatments of insomnia, hypnotic medication remains the most common treatment of insomnia by primary care providers. Such treatment in many cases leads to a pattern of tolerance and dependence on sleep medication, as well as difficulty discontinuing treatment and subsequent rebound insomnia. Recent research suggests promise for behavioral interventions in the treatment of hypnotic dependent insomnia. In this article, the authors report on the treatment of a particularly challenging case: an older adult with a history of addictive behavior now dependent on hypnotics. The authors demonstrate the best possible outcome: elimination of sleep medication combined with sleep improvement.

Keywords: insomnia; hypnotic dependence; benzodiazepines; aged; behavior therapy

1 THEORETICAL AND RESEARCH BASIS

Insomnia is a widespread complaint affecting approximately 10% of the population (Ford & Kamerow, 1989), though a lack of uniformity in definition of clinically significant insomnia has yielded prevalence rates from 2% to 40% (Morin, 1993). Despite findings that psychological treatments have been shown to be safe and effective in the treatment of insomnia (Lichstein & Riedel, 1994) and despite cautions against long-term use of hypnotics in the management of chronic insomnia (Institute of Medicine, 1979; National Institutes of Health, 1991; National Institutes of Health, Consensus Development Conference, 1984), hypnotic medications remain the likeliest insomnia

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treatment used by primary care physicians (Everitt, Avron, & Baker, 1990). In fact, prescription hypnotics, especially the benzodiazepines that are the predominant class of hypnotics, are taken by 2.6% of the population (Mellinger, Balter, & Uhlenhuth, 1985).

Despite their widespread use, benzodiazepines present the greatest health risk among the types of hypnotics currently in use. Though clinical efficacy of benzodiazepines has been established in short-term controlled trials (Ashton, 1994), long-term laboratory trials have yet to be conducted. Several issues arise with benzodiazepines specific to the treatment of insomnia. First, sustained use, even for as little as 2 weeks (Kales, Scharf, & Kales, 1978), will yield a tolerance-dependence pattern (Humphreys & Hallstrom, 1995; Petursson & Lader, 1984) characterized by diminished efficacy and return of insomnia maintained at moderate levels by continued drug use. Second, sleep stage decrements may occur especially in rapid eye movement sleep and deep sleep. Third, daytime side effects are common, including sedation associated with long half-life hypnotics and anterograde amnesia associated with short half-life benzodiazepines.

One final issue pertinent to the use of benzodiazepines in the management of chronic insomnia is the disproportionate use and impact of hypnotics in treatment with older adults. Again, several factors influence this relationship. First, insomnia is a pervasive problem among older adults, affecting about one third of this age group (Foley et al., 1995; Mellinger et al., 1985). Second, hypnotic exposure is greater in older adults given the higher rate and persistence of hypnotic use, as about 10% to 15% of older adults use hypnotics, a rate approximately five times that of their younger counterparts (Lichstein & Johnson, 1993; Quera-Salva, Orluc, Goldenberg, & Guilleminault, 1991). Furthermore, older adults consume one third of prescribed hypnotics (Ashton, 1994; Mellinger et al., 1985), and about one third of elderly hypnotic users continue use for at least 5 years, a chronicity rate double that found in younger hypnotic users (Petursson & Lader, 1984). Finally, older adults are more vulnerable than younger adults to hazards associated with hypnotic use. These dangers stem from absorption and metabolic changes in later life that can extend drug half-life and promote drug accumulation, can heighten the likelihood of residual daytime impairment, and can exacerbate sleep-disordered breathing, which is more common in the elderly (Guilleminault, 1990; Guilleminault & Silvestri, 1982; Moran, Thompson, & Nies, 1988; National Institutes of Health, Consensus Development Conference, 1984). Furthermore, polypharmacy complications are more likely in older adults given their higher consumption of medications in general.

Many studies have confirmed impaired functioning in older adults as a result of benzodiazepine use. For example, older adult benzodiazepine users have a significantly higher rate of automobile accidents compared with matched nonusers (Neutel, 1995). The rate of hip fractures is significantly higher in older adults using long half-life benzodiazepines (sedatives and hypnotics combined) than in matched nonusers (Ray, Griffin, & Downey, 1989). Similarly, among a mixed-age sample of benzodiazepine

users (sedatives and hypnotics combined), there was a significantly higher rate of medically treated accidents and injuries compared with matched nonusers (Oster, Russell, Huse, Adams, & Imbimbo, 1987). Last, there is a 60% increased risk of femur fracture from accidental falls among elderly benzodiazepine users, and this finding appears dependent on dosage level rather than drug half-life (Herings, Stricker, de Boer, Bakker, & Sturmans, 1995).

Given issues of impaired functioning and physical complications, it is clear that benzodiazepine discontinuation is a desired outcome especially in older adults; however, psychological factors interact with the tolerance-dependence pattern typically associated with benzodiazepines to prolong hypnotic dependence. For example, abrupt withdrawal may exacerbate insomnia and anxiety above baseline levels even after 1 week of hypnotic use (Greenblatt, Harmatz, Zinny, & Shader, 1987). Even a gradual reduction schedule of 25% per week provoked withdrawal side effects in 90% of short and long half-life, long-term benzodiazepine users (Schweizer, Rickels, Case, & Greenblatt, 1990). Resumption of hypnotics brings rapid relief from these acute symptoms, and anticipation of rebound effects may discourage attempts to forego reliance on hypnotics, even when users no longer derive desired hypnotic benefits (Schneider-Helmert, 1988).

Given these problems with use of hypnotics and the proliferation of safe, effective behavioral treatments for insomnia, there appears to be a unique and clinically significant role for psychological interventions in the treatment of hypnotic dependent insomnia. Though few studies have explored the use of psychological treatments for hypnotic dependent insomnia, those studies that have investigated such treatments have yielded strong results (Espie, Lindsay, & Brooks, 1988; Kirmil-Gray, Eagleston, Thoresen, & Zarcone, 1985; Lichstein et al., 1999; Morin, Colecchi, Ling, & Sood, 1995; Morin, Stone, McDonald, & Jones, 1994; Riedel et al., 1998). For example, Morin et al. (1994) delivered a multifaceted intervention that combined cognitive, behavioral, and educational components and found that medicated and nonmedicated insomniacs reported comparable sleep improvements, and the number of habitual users of sleep medication decreased by 54% posttreatment. Similarly, Morin et al. (1995) applied the same treatment package to older chronic benzodiazepine users with insomnia and found that all participants eliminated or greatly reduced benzodiazepine use. By the 3-month follow-up, sleep was comparable or improved relative to baseline. Finally, two studies have found modest additional sleep gains by supplanting medication withdrawal with either stimulus control treatment (Riedel et al., 1998) or progressive muscle relaxation (Lichstein et al., 1999). Although these studies yielded impressive results, it is important to explore if behavioral tools used in the literature can aid a client faced with issues common to the older adult hypnotic dependent population, such as polypharmacy and medical and physical complications, to eliminate the use of hypnotic medication without subsequent long-term deterioration of sleep. This case study can provide the clinician with a good first step.

2 CASE PRESENTATION

At the time of treatment, AB, a Caucasian man who lives with his wife of 48 years in Memphis, Tennessee, was 70 years old. He has 5 children and 11 grandchildren, and the majority of his family also resides in the mid-South. AB graduated from the University of the South in 1950 with a bachelor's degree in Spanish and English. He worked for 25 years as a locksmith and retired in 1995. At that time, he began selling dietary supplements from his home and reported being energized by that work. For recreation, he enjoys movies and computers.

3 PRESENTING COMPLAINTS

AB presented at our local hospital sleep disorders center/insomnia clinic for the assessment of insomnia, after being referred by his primary care physician. He reported a 3-year-long difficulty initiating and maintaining sleep. At that time, AB was given temazepam (Restoril), a benzodiazepine commonly prescribed for difficulties with sleep. Although AB reported that this medication did not take much time to become effective, its effects had grown short lived in that a 15-mg dose lasted for 3 hours, prompting awakenings in the middle of the night to take one or two more 15-mg doses. Most nights, then, AB took 30 mg or 45 mg of Restoril. In addition, AB reported the use of melatonin in spray form, typically 6 mg per evening (approximately 1 mg per spray).

AB indicated that his difficulties with sleep occurred just after his retirement. He attributed his insomnia to occupational and social stressors associated with amassing a large debt from his business of selling herbal dietary products.

4 HISTORY

AB reported a variety of past and current medical difficulties: ulcers in the 1960s, surgery removing his large intestine and part of his stomach, current difficulties with dental implants, and allergies. He reported (because of his previous surgeries) being heavily medicated for long periods of time on Percodan, Demerol, and Mepergan Fortis. He suggested that given many previous medical difficulties, reliance on multiple prescription medications was common for him, as well as the need for increasing dosages of these medications. AB reported that 4 years prior to treatment he consulted a professional and subsequently discontinued use of prescription medications. AB stated that though he "got off" these medications, he began taking multiple dietary supplements daily and still enjoyed alcohol or wine on many evenings.

AB stated that he had an "early in life" encounter with a mental health professional "because of giftedness" and a more recent experience (approximately 4 years prior to

treatment) with a mental health professional, consisting of two sessions, in an effort to discontinue previously used medications.

5 ASSESSMENT

AB was a thin man who appeared to be younger than his stated age. During his initial interview, he was cooperative in responding to questions and elaborated on various topics throughout. His responses seemed genuine and honest.

AB was oriented in all spheres. His short-term memory, long-term memory, abstract reasoning, and judgment were within normal limits. His thought content was free of suicidal ideation, homicidal ideation, or hallucinations. There were no delusional systems obvious, and his speech and thought flow were within normal limits as well.

AB completed 2 weeks worth of sleep diaries to assess his sleep and medication use (AB missed 1 night on his baseline diaries, resulting in 13 days of sleep and medication data). His sleep diaries elicited the following information: daily nap time, bedtime, time to fall asleep, number of awakenings, total time spent awake at night, final wake-up time, time out of bed, quality rating of sleep (a rating from 1 = *poor* to 5 = *excellent* of the quality of the prior night's sleep), and a listing of medications taken for the evening. From this information, we also calculated total sleep time and sleep efficiency percentage (proportion of time in bed spent sleeping).

An appraisal of AB's sleep diaries revealed that he napped infrequently, had some difficulty with sleep onset, had some difficulty maintaining sleep, slept about 7 hours per evening, rated his sleep as *good*, and maintained a relatively high sleep efficiency percentage (see Table 1 and Figure 1). However, AB's diaries also revealed that he consumed, on average, 35.4 mg of Restoril and 6.0 mg of melatonin per evening to aid his sleep (see Figure 2).

6 CASE CONCEPTUALIZATION

Given AB's physician referral, his reports in his initial interview, and his baseline sleep diaries, it was concluded that AB was diagnosable with hypnotic dependent insomnia as evidenced by complaints of poor sleep and the need for increasing amounts of medication to obtain his desired level of sleep. In addition, it was noteworthy that AB's history of prescription medication addiction, his presenting problem, and his continued use of alcohol and dietary supplements comprised characteristics of an addiction-prone personality. This then warranted attention in designing and implementing his medication withdrawal schedule, as well as in providing him individualized cognitive-behavioral therapy.

TABLE 1
Means and Standard Deviations for Sleep Variables at Baseline and Follow-Up

	Baseline		*Follow-Up*	
Sleep Variable	M	SD	M	SD
Nap time (minutes)	4.62	9.67	5.00	12.40
Initial latency to sleep (minutes)	37.00	16.72	2.29	2.46
Number of awakenings	2.08	0.95	2.00	0.88
Wake time after sleep onset (minutes)	21.15	19.27	9.71	5.53
Morning awake time before rising (minutes)	30.38	19.84	3.93	4.48
Total time slept (minutes)	425.69	52.71	416.64	60.06
Sleep efficiency	82.66	5.54	96.16	2.16
Sleep quality rating	4.00	0.91	4.71	0.61

In conjunction with AB's primary care physician, the sleep disorders center medical director, and AB himself, a gradual medication withdrawal schedule was designed in an effort to eliminate the use of sleep medication. Behavioral interventions consisting of passive relaxation, stimulus control treatment, and sleep hygiene were implemented to maintain AB's quantity and quality of sleep. In addition, cognitive-behavioral therapy was used to combat any troubling side effects and issues arising from drug withdrawal, as well as address thoughts and behaviors surrounding past and current addictions.

7 COURSE OF TREATMENT AND ASSESSMENT OF PROGRESS

Given the primary goal of drug discontinuation and maintenance of sleep, medication withdrawal and behavioral interventions were introduced simultaneously. AB's drug withdrawal schedule was very gradual, especially given his history of excessive use of prescription medications. For this reason, a weaning of about 15% of both Restoril and melatonin was targeted for each of 10 weeks. For example, from Week 1 to Week 2, AB was asked to reduce his average use of Restoril from 25.7 mg per evening to 22.5 mg per evening. During the same weeks, AB was to decrease use of melatonin from 5.9 mg per evening to 5.0 mg per evening. Such a gradual withdrawal schedule was used to reduce the likelihood of side effects and rebound insomnia. AB was to track nightly and weekly his medication usage to report in session if he had complied with the treatment plan for that week and, if not, what problems he had encountered.

At the beginning of treatment, AB also was educated on sleep hygiene (i.e., no naps, no evening caffeine) and given stimulus control instructions (i.e., bed used only for sleep and sex; if awake for more than 15 minutes, leave bed and do not return until sleepy) to maintain his sleep. In addition, AB was subsequently taught passive relaxation exercises, which consisted of guided imagery, deep breathing, and focus on successive body parts in an effort to relax them. Passive relaxation was used, rather than progressive muscle relaxation, because of AB's age and history of medical complaints. Again, AB was

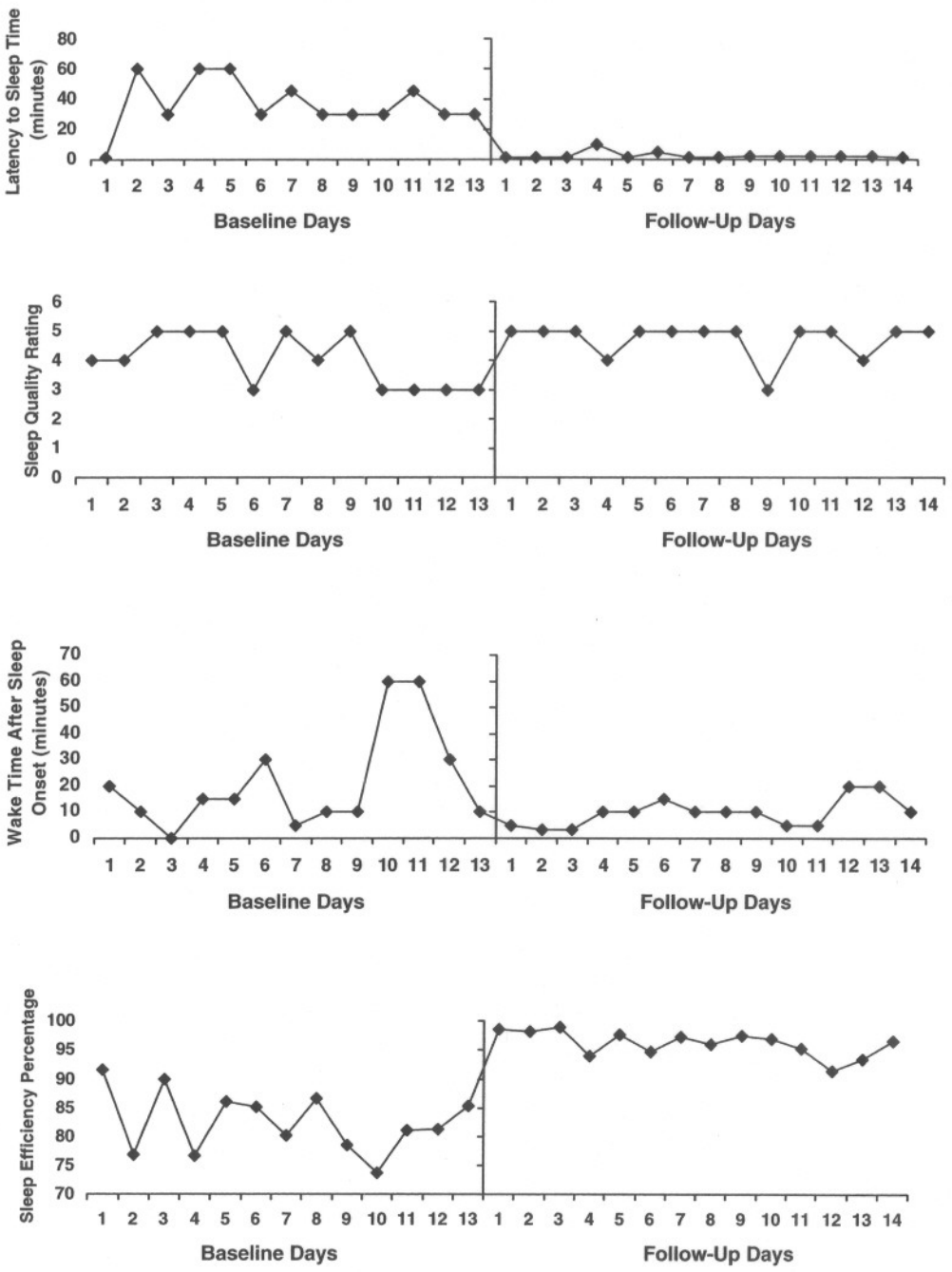

Figure 1. A Comparison of AB's Sleep Variables at Baseline and 1-Year Follow-Up

NOTE: Sleep variables include latency to sleep time, sleep quality rating, wake time after sleep onset, and sleep efficiency percentage. Sleep quality rating was based on a 1 (*poor*) to 5 (*excellent*) scale of quality of sleep. Sleep efficiency percentage is the ratio of total sleep time to time in bed.

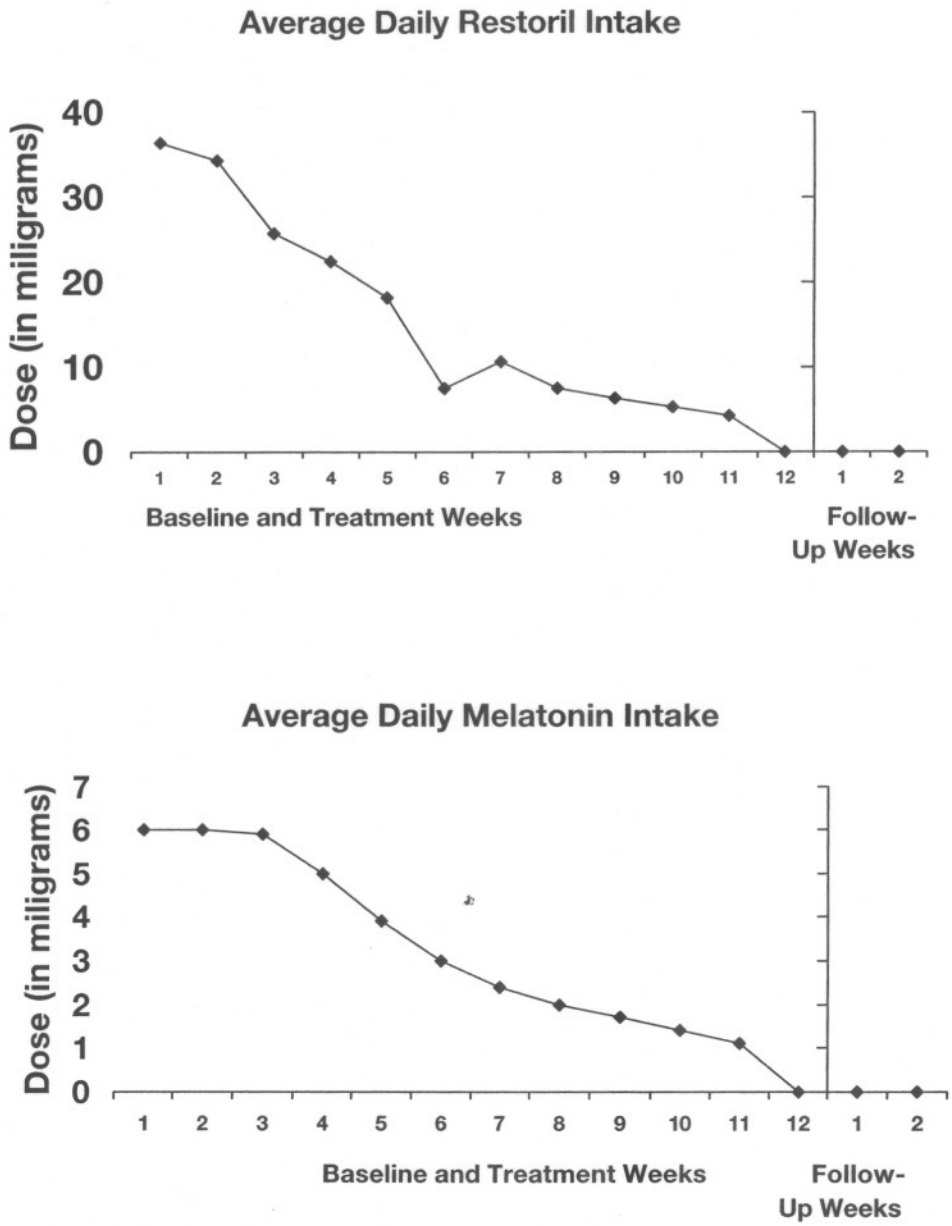

Figure 2. A Comparison of AB's Average Daily Medication Indicate at Baseline Treatment and 1-Year Follow-Up

NOTE: Average daily intake of two medications used for sleep improvement, temazepam (Restoril) and melatonin, are displayed.

asked to track his adherence to sleep hygiene, stimulus control instructions, and use of passive relaxation on a daily and weekly basis in order to report his level of compliance with treatments in session. Procedural details of these insomnia interventions are available in Lichstein and Morin (2000).

AB was cooperative and compliant throughout his 10-week treatment, reducing medication according to his schedule most weeks, as well as adhering to behavioral treatments that suggested helping maintain quality sleep. In fact, after about four sessions, AB requested brief phone contact for subsequent sessions unless any difficulties arose. After about 4 weeks of phone contact, AB did request an in-person session to discuss some minor side effects and aid in continuing his adherence to the treatment plan. Afterward, AB only required minimal phone contact sessions through the end of treatment.

By the end of treatment, AB reported eliminating Restoril and melatonin completely, and he reported that his sleep quantity and quality had not deteriorated from baseline levels. Given that hypnotic elimination was achieved, failure of sleep to worsen was a clinically significant outcome.

8 COMPLICATING FACTORS

As was stated previously, AB was cooperative and compliant throughout; however, his history of addiction to prescription medications required sensitivity in maintaining a trusting relationship and continued monitoring of drug usage. For instance, during Week 3 of treatment, AB reported compliance with his medication withdrawal schedule but indicated that he had been having "a few glasses of wine" before bedtime. In addition, AB's "enthusiasm" at times became the focus of treatment. For example, in the midst of treatment, AB requested an in-person session due to side effects that were likely the result of his attempts to withdraw from medication too rapidly, jumping ahead of his weaning schedule. In both cases, behavioral treatment focused on his cognitive distortions (i.e., all-or-nothing thinking) to reduce anxiety surrounding continued use of drugs, despite consistent gradual reduction of them. Also, sleep interventions, like stimulus control or relaxation, were elicited from AB as healthy alternatives to alcohol or medication. Although minor complications such as these arose during treatment, continued monitoring of compliance, side effects, sleep pattern, addictive behaviors, and anxiety resulted in the ability to intervene quickly and in a fashion that targeted the reported problem.

9 MANAGED CARE CONSIDERATIONS

No managed care issues arose during treatment, because AB's insurance agreed to pay for his treatment. In addition, it should be noted that the treatment presented here was relatively brief (completion of baseline diaries and 10 weeks of treatment) and used brief phone contacts in the latter half to maintain cost-effectiveness without sacrificing clinical effectiveness.

10 FOLLOW-UP

Two follow-up occasions occurred. First, 1 month posttreatment, AB was contacted by phone. He reported no drug relapse or difficulties with sleep. Second, 1 year posttreatment, AB was contacted by phone, and he again reported no resumption of medication or difficulties with sleep. At that time, he was asked to complete another 2-week sleep diary to better assess his level of progress both in terms of medication use and sleep. These self-report diaries confirmed no medication use (see Figure 2) and not only had sleep not deteriorated but improvements on many sleep variables had occurred (see Table 1 and Figure 1). An appraisal of AB's follow-up sleep diaries revealed that he napped infrequently, had no difficulty with sleep onset, had less difficulty maintaining sleep than at baseline, slept about the same 7 hours per evening, rated his sleep as *good*, and maintained an extremely high sleep efficiency percentage.

11 TREATMENT IMPLICATIONS OF THE CASE

This case is the first demonstration of a successful hypnotic management in an individual with a demonstrated history of multiple addiction. It illustrates the eagerness we routinely encounter in individuals dependent on sleep medication to rid themselves of this treatment and the difficulty individuals experience in attempting hypnotic withdrawal without professional assistance. Despite a history of prescription addiction, as well as increasing amounts of two different sleep medications, use of professional aid consisting of a gradual, individualized medication withdrawal schedule (designed in conjunction with the client's physician) supplemented by behavioral sleep interventions to maintain level of sleep and cognitive-behavioral therapy aimed at establishing rapport and combating any treatment complications can result in a safe, effective, and cost-effective treatment for hypnotic dependent insomnia.

12 RECOMMENDATIONS TO CLINICIANS AND STUDENTS

Several recommendations follow from treating this case of hypnotic dependent insomnia. First, a thorough assessment of the presenting complaint is vital to an accurate diagnosis and treatment plan. For example, AB presented by reporting his sleep difficulties, but careful attentive questions honed in on reasons for his physician's referral, his increasing use of sleep medications, and their decreasing effectiveness. Similarly, a thorough history, especially a medical and psychological history, is important in recognizing how current medication use may fit a pattern of past behavior. In this case, AB's history of addiction informed implementation of the medication withdrawal schedule and use of cognitive-behavioral therapy. Second, and paramount to the treatment presented here, medication withdrawal must be individualized based on current use and history and it

must be gradual because rapid drug discontinuation is likely to result in increased side effects, rebound insomnia, and possible decreased compliance. Third, the addition of effective behavioral interventions targeting sleep aid the patient practically by maintaining levels and quality of sleep as well as psychologically by bolstering confidence and competence in internal methods of initiating and maintaining sleep without the use of medication. Fourth, consistent monitoring of medication use, sleep, side effects, and compliance can alert clinicians to any complications that require quick and focused intervention to maintain treatment progress. Fifth, frequent positive feedback and well-timed follow-up act to maintain treatment gains and diminish the likelihood of relapse in clients faced with hypnotic dependent insomnia. Finally, it is important to note that this case demonstrates that successful hypnotic withdrawal is attainable even in complex, "poor" therapy risk cases.

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