Part V

Treatments of Sleep Disturbances in PTSD

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Post-traumatic stress disorder (PTSD) is a complicated syndrome arising from a specific incident or sets of incidents whereby an individual experiences either a direct, indirect, or perceived threat to their personal safety. It is estimated that between 2% and 12% of the population will experience at least transient PTSD throughout the course of their lives [1, 2]. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V), four clusters of symptoms must be present to confirm the diagnosis: (1) recurrent mental imagery reexperiencing the traumatic event, (2) a pattern of avoidance behaviors, (3) negative alterations in cognitions and mood, and (4) alterations in arousal and reactivity such as hyper-vigilance [3].

Both sleep complaints and sleep disorders are common in those with PTSD. Polysomnographic recordings of patients with PTSD noted changes in sleep efficiency, sleep latency, rapid eye movement (REM) latency, and REM density [4]. The amygdala and medial prefrontal cortex, known to facilitate emotional processing and fear conditioning, may have an additional modulating role with respect to the sleep-wake cycle [5]. The associated sleep disorders seen with PTSD are intimately linked to each of the four symptom clusters that define this disorder. Recurrent images and reexperiencing the traumatic event can cause difficulty initiating sleep and nightmares. The development of avoidance behaviors may lead to alterations in physical activity, social interactions, and daily routines that can lead to circadian phase shifts and inconsistent sleep-wake schedules. Negative alterations in cognition and mood commonly manifest as anxiety and depression, which further contribute to insomnia and circadian rhythm disruptions. Further, medications used to treat these symptoms may contribute to altered sleep architecture. Finally, heightened arousal and vigilance seen with PTSD reflect the core association between this disorder and disturbed sleep, manifesting as difficulty initiating sleep, maintaining sleep, diminished sleep efficiency, and sleep disordered breathing.

Insomnia is the most common sleep disorder associated with PTSD. The presence of insomnia following a traumatic event greatly increases the likelihood for the subsequent develop-
ment of PTSD [6–8]. In addition, persistent insomnia portends worse outcomes, with a greater risk for recurrent major depressive episodes, hospitalizations, substance abuse, and suicidality [7–12]. Treatment of PTSD-associated insomnia includes pharmacotherapy as well as cognitive behavioral therapy (CBT-I). Meditation and relaxation techniques have also been shown to improve sleep quality, decrease symptoms of depression, and improve quality of life in patients with PTSD [13]. While a potentially promising primary or alternative therapy, the evidence is not nearly as robust as with pharmacotherapy and CBT-I and warrants further exploration.

Nightmares are reported in 50–90% of patients with PTSD, and many develop nightmare disorder [14, 15]. Nightmares not only diminish quality of life, they contribute to insomnia, sleep avoidance, and sleep fragmentation. As such, they represent a target of therapy that may greatly improve outcomes. Imagery rehearsal therapy and dream rescripting can greatly reduce the frequency and severity of nightmares [16]. In addition, several pharmaceutical agents may improve sleep-related symptoms in PTSD. Most notably, the alpha-antagonist prazosin can reduce nightmare frequency and severity [17–19].

It is becoming increasingly apparent that OSA may contribute to both the underlying sleep disturbances and persistence of symptoms in many patients with PTSD [20]. There appears to be a bidirectional relationship between the risks of OSA and PTSD, with each increasing the risk of the other [21–24]. Not only is this association common, it has been shown to have additive pathologic impact, and the combination negatively impacts the response to therapy [25].

It is clear that sleep comorbidities are common, contribute to worse outcomes, and must be treated as separate disorders in parallel with treatment of PTSD. The following chapters will review data assessing the success of sleep-focused cognitive behavioral therapies, nightmare deconstruction and reprocessing, imagery rehearsal therapy, and associated pharmacotherapy. Future directions and gaps in the evidence base will also be acknowledged.

References