CHRONIC PAIN is defined as continuous pain that persists for more than three months or beyond the time of normal healing. In contrast to acute pain, it does not serve a physiological role in preventing or avoiding injury. It is a common problem in general practice, affecting up to 20% of patients. It causes considerable individual suffering, a reduction in the quality of life and social functioning. It places a significant burden on the health services and on the economy and society as a whole.

Disturbances in sleep and alterations in mood are common and frequently accompany chronic pain, as do psychosocial variables such as mood stress as indicated by psychometric tests measuring depression or anxiety and the social situation in which the pain occurs.

Research demonstrates that insomnia worsens chronic pain even in people who have no other psychiatric problems such as depression. This article aims to review these epiphenomena, which contribute to the vicious cycle of chronic pain, sleep disturbance and depression of mood, and their therapies.

Sleep is an essential process for normal human physiological and psychosocial functioning. It is a state characterised by unconsciousness, decreased muscle tone and altered (decreased) metabolic activity and consists of repeated cycles of characteristic EEG activities. The pattern of the EEG is termed sleep architecture.

Stage one is the process of falling asleep, stage two is light sleep featuring theta waves and sleep spindles. Stages three and four are deep or slow wave sleep and are characterised by delta waves. REM (rapid eye movement) sleep, which is associated with dreaming, is characterised by alpha waves (similar to wakefulness) and profoundly reduced muscle tone. Approximately five cycles occur in a normal night’s sleep, consisting of light sleep, followed by deep sleep and then REM sleep.

Sleep disturbances, both insomnia and alterations in sleep architecture, are more common in patients with chronic non-malignant pain than in controls, occurring in up to 90% of patients. There appears to be a reciprocal relationship between pain and sleep disturbances. Insomnia itself may antagonise the analgesic effects of therapy, lower effect and also directly lead to diminished functioning.

Nociceptive stimuli induce alterations in sleep short of actual awakening, and pain severity is predictive of sleep disturbance. Both sleep deprivation and disturbance of sleep architecture, most particularly disruption of slow wave sleep, have long been known to lower the pain threshold in a ‘dose dependent’ manner.

The treatment of sleep disturbance in patients with chronic pain relies on both pharmacological and non-pharmacological therapies.

Pharmacological approach
Benzodiazepines have been extensively employed to facilitate sleep and are still considered by many doctors to be the agents of first choice. However, their effectiveness in achieving quality sleep is questionable. While producing anxiolysis and hypnosis, they do little to alter sleep architecture, which is the aim of the therapy, and may have relatively little to offer in this clinical milieu.

Many drugs have sedation as a side effect; however, after the sedation wears off the patient does not feel rested, as the sleep architecture has not been improved.

Of greater potential benefit is utilisation of the soporific effects of drugs used in the management of neuropathic pain. Tricyclic anti-depressant drugs (eg. low dose amitriptyline, 25mg administered at night, increased to 75mg as tolerated) and the alpha2delta (α2δ) receptor blockers (gabapentin and pregabalin) have all demonstrated an improvement in sleep architecture. The significant side effects of these drugs have to be explained to patients prior to use.

Non-pharmacological approach
Cognitive behavioural therapy (CBT) helps to understand and alter distortions of thought or perceptions, which may be causing prolonged psychological disruptions. It has been used in the treatment of both insomnia and of chronic pain, in the form of pain management programmes.

CBT aims to improve the way an individual manages and...
Newer approaches introduced in the 1990s include:

• Mindfulness meditation; the goal of which is to be less disturbed by events, thoughts, memories, mental images and bodily sensations. The typical method used is to enable the patient to develop the skill of just observing thoughts, memories and sensations, etc. as they occur without clinging to them or rejecting them (acceptance).

• Acceptance and commitment therapy. This has the same goal as mindfulness meditation but in the context of commitment to personal values. The typical approach is that the patient identifies personal values with the help of a therapist, then uses a variety of tactics to reduce domination of thoughts, memories, mental images and emotions, which restrict contact with ongoing experience and interfere with living by those values.

CBT is normally conducted by a trained and skilled psychologist with support from other specialities such as physiotherapy, occupational therapy, etc. CBT has been shown without a doubt to be as efficacious as pharmacological therapy in the treatment of primary insomnia.

Affective disorders, principally depression, are very common in chronic pain as an inability to function leads to loss of role and self-esteem with the progressive envelopment of other problems such as strained relationships and in many cases financial hardship. All this may lead to poor functioning, failure to respond to therapy, increased patient suffering and in extreme cases, even to suicide.

Depression affects up to 50% of patients with chronic pain, which is four times as prevalent as compared to the pain-free general population. Also, there is a far higher incidence of chronic pain in patients with depression and these patients with pain have increased severity, duration and relapse rate of their psychiatric disorder.

The relationship between chronic pain and depression is somewhat unclear as depression certainly seems to be part of the pathogenesis of chronic pain syndromes, but the exact causality is unknown. Risk factors for depression in chronic pain patients include older age, number of pain sites, the extent to which pain limits the patient’s independence, mobility or social functioning and a prior or family history of depression.

The presence of depression worsens outcomes for patients with chronic pain. At the extreme, there is an increased incidence of suicidal ideation, intent, attempt, and of suicide itself. When compared to similar patients without an affective disorder, depressed patients with chronic pain describe greater pain intensity, exhibit more pain behaviours and ineffective coping skills, have lower social functioning, are less likely to return to the workforce and consume more healthcare resources.

Typical symptoms indicative of an affective disorder include: low mood, altered appetite or weight, sleep disorders, agitation, anergia, loss of interest in activities, feelings of worthlessness or guilt, poor concentration or memory, and suicidal ideation or intent. Depression may present atypically with somatic complaints, particularly in the elderly. The diagnosis of depression in chronic pain patients can be very difficult as the symptomatology of the two conditions can overlap.

The modern pharmacological therapy for depression is effective. Of particular interest is that several of these agents also have a role in the treatment of neuropathic pain per se and in the treatment of sleep disorders associated with chronic pain. Most agents act by modulating the metabolism of noradrenaline or of serotonin, both of which are neurotransmitters involved in the descending inhibitory pain pathways. It is noteworthy that these effects are independent of, and evident at lower dosages and within a shorter timeframe than that required to elicit an antidepressant effect. In general, the TCADs are considerably more effective than SSRIs in treating neuropathic pain.

In summary, sleep disturbances and depression of mood frequently accompany chronic pain, and worsen outcome for the patient. These facets of the chronic pain complex must be treated in conjunction with the analgesic therapies. Some of the pharmacological choices, such as low dose TCADs, have a role in treating pain and improving sleep architecture. However, non-pharmacological therapies may be equally effective without the risk of drug side effects. A combination of both therapies is probably the best way forward.

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References on request