

A paper in the prestigious journal JAMA, published in 2000, noted that "Sleep disorders, often unrecognized, complicate many physical illnesses" (3). Examples of conditions accompanied by disturbed sleep are:

- pain
- restless legs
- periodic limb movement disorder
- movement disorders such as Parkinson's Disease
- cramps
- fibromyalgia
- multiple sclerosis
- sleep apnoea
- indigestion (hiatus hernia etc.)
- menopause
- hyperthyroidism
- urinary problems
- dialysis
- allergies
- shortness of breath
- medication-related (and may affect sleep rhythm) including withdrawal

Obviously, pain is a major factor in insomnia in people with arachnoiditis. Whilst bed may be the only place where we can get comfortable, night-time may bring severe, often unrelenting pain, especially if it is neuropathic, which is known to be worse at night.

Muscular and joint pains can also be bad and prevent falling asleep because they have accumulated during the day's activities. Nerve pain and muscle cramps can awaken us frequently during the night, disturbing sleep considerably.

A recent study in Bath found that 88.9% of chronic pain patients reported at least one problem with disturbed sleep, with greater sleep disturbance being associated with greater pain, disability, depression and physical symptoms (4). Sleep disturbance predicted disability and physical symptoms independent of pain or depression.

The authors noted that

“Sleep disruption is usually considered to be a consequence of the pain experience.

However, the results of the present study reinforce the view that sleep disturbance may have a bidirectional relation with other features of chronic pain”. In other words, pain disrupts sleep, and lack of sleep is linked with greater pain. This obviously sets up a vicious circle.

Restless legs are a common problem, and generally involves a vague and difficult to describe discomfort in the legs and feet, relieved by getting up or moving the limbs about, rubbing the affected parts or taking a bath, but returning as soon as the person goes back to bed. It can cause difficulty in falling asleep and repeated awakenings throughout the night.

In most people, there is no obvious underlying cause, but in arachnoiditis, it may be linked with abnormal nerve impulses due to compression by scar tissue, causing muscle fibres to contract. It may be associated with a crawling sensation of the muscles rippling or there may be muscle twitches.

Both Restless Legs Syndrome (RLS) and Periodic Limb Movement Disorder (PLMD) are more prevalent in people with underlying neuropathy, as in arachnoiditis or such conditions as diabetes, renal disease or even pregnancy.

Periodic limb movement disorder often occurs simultaneously with restless legs and is characterised by movements ranging from shallow, continual movement of the ankle or toes, to wild, strenuous kicking and flailing of the legs and arms. PLMD may also involve abdominal, oral, and nasal movement.

Movement of the legs is more typical than movement of the arms. They typically occur for between half a second and ten seconds, at intervals of five to 90 seconds. PLMD includes any repetitive, involuntary movement at night.

Movements tend to occur during stage 2 sleep, and they may awaken the individual. PLMD is

estimated to occur in 5% of people age 30 - 50 and 44% of people over 65 years of age. It may account for around 12% of patients with insomnia and 3.5% of people suffering from excessive daytime sleepiness.

Caffeine and alcohol may exacerbate symptoms. Anaemia and iron deficiency are also associated with worsening of the condition.

Parkinson's Disease and other similar movement disorders are associated with sleep disturbance.

A study in India found that about a third of PD patients had insomnia, another third experienced nightmares and 15% had excessive daytime sleepiness, compared with around 5% for each problem in normal (control) individuals (5) .

Muscle cramps are experienced by the majority of people with arachnoiditis. They tend to affect the limb(s) worst affected by the condition. Nocturnal cramps are common.

Fibromyalgia is a pain amplification condition which commonly co-exists with arachnoiditis, indeed many people are diagnosed with it before or instead of a diagnosis of arachnoiditis.

It is now recognised that fibromyalgia is associated with a type of sleep disturbance known as **alpha-delta sleep disorder**

. This involves intrusion of alpha brainwaves (normally experienced whilst awake) into deep (delta) sleep, which causes jolting back to lighter sleep and thus inadequate amounts of deep, restorative sleep.

This worsens the fibromyalgia symptoms of fatigue and musculoskeletal pain.

Multiple Sclerosis has been found to be associated with disturbed sleep, which has been postulated as being related to periodic limb movements.

An Italian study found that MS patients had significantly reduced sleep efficiency and experienced more awakenings during sleep (6). In 36% of patients, periodic limb movements were thought to be the cause.

A Dutch study found that MS patients consulted their primary care doctor (GP) for three main problems aside from the MS-specific neurological problems. Sleep disorder was one (the others were urinary infection and incontinence) (7).

**Sleep apnoea** is a breathing disorder which is defined as cessation of breathing during sleep.

There are 3 types:

- obstructive (the most common) is characterised by repetitive pauses in breathing due to obstruction and/or collapse of the throat;
- central, where a neurological problem leads to cessation of all respiratory effort, and an automatic sleep reflex wakes the person;
- mixed: a combination of the first two.

An analogy helps to explain: obstructive apnoea is like when a sock gets stuck in the Hoover nozzle, central is when the Hoover is switched off altogether.

Apnoea is clinically significant if it lasts at least 10 seconds and occurs 5 or more times per hour (less than 5 is normal).

Most people tend to be unaware that they have sleep apnoea.

Symptoms include:

- loud frequent snoring, with episodes of silence lasting between 10 seconds and a minute. The end of an episode is associated with loud snores, gasping, moans and mumbling.
- body movements often accompany awakening at the end of an apnoea episode
- excessive daytime sleepiness or fatigue.
- unrefreshing sleep,
- morning headaches
- severely dry mouth.

Indigestion is encountered quite often in people with muscular aches and pains, partly due to anti-inflammatory medication taken to relieve the pains. It is worse at night because of the lying down position.

Reflux may also be associated with chest symptoms, sudden shortness of breath at night and possibly sharp chest pain, as well as the typical burning sensation behind the sternum (and pain may radiate into the upper back).

Around the time of the menopause, women may find they suffer from insomnia. This can be of any type and can range in severity. Hot flushes and sweating may be associated with frequent waking during the night.

Hyperthyroidism, if not under control, may be associated with symptoms such as palpitations, which may disturb sleep.

Urinary troubles (incontinence) can lead to a need to get up in the night to visit the toilet, which can compound sleep disruption.

Insomnia is a common problem in dialysis patients. A Korean study looking at diabetic dialysis patients found that 68% of the patients studied had insomnia, which was related to age, nutritional status, and depression (8).

Allergies, whether food or respiratory, may keep you awake. Respiratory allergies cause obvious symptoms such as runny nose, watery eyes, sneezing etc., and may cause wheezing which also disturbs sleep. Food allergies may be less obvious.

Allergy to dairy produce, wheat, chocolate, nuts, red and yellow food dyes etc. may trigger sleep problems which tend to resolve a week or two after stopping consumption of the culprit foodstuff.

Shortness of breath for any reason (asthma, chronic bronchitis etc.) can mean frequent awakenings and/or the need to sleep in a more upright position.

Medication taken to relieve pain or other symptoms may affect the sleep cycle, especially if not taken at the optimal time. Tricyclic antidepressants such as amitriptyline are associated with an increase in restless legs and periodic movement.

Sleeping pills are of course one of the major contributors to insomnia. They are very addictive and do produce tolerance at a particular dosage. This dosage then becomes increasingly ineffective and permits a degree of withdrawal, leading to rebound insomnia. Of course withdrawal also occurs if the drug is discontinued suddenly.

Examples of medication that may cause insomnia:

- antidepressant drugs e.g. Prozac
- antihypertensives
- bronchodilators: medication for asthma which contain ephedrine,
- aminophylline etc.
- medication containing caffeine
- tranquillisers
- steroids
- thyroid preparations
- cancer chemotherapy agents

There are various other drugs that may impact on sleeping, as described in the following section.