

# Insomnia

## Overview

### Background

**According to a survey by the Office of National Statistics (ONS 2000), around 29% of adults reported experiencing sleep problems the week before interview. Such problems are more common in women (34%) than men (24%) (ONS 2000).**

Insomnia that is not due to an organic cause is defined as a condition of unsatisfactory quantity and/or quality of sleep lasting for a considerable period of time **(WHO 2007)**. It includes difficulty falling asleep, difficulty staying asleep, or early final waking **(WHO 2007; American Psychiatric Association, 2000)**.

The choice of treatments for insomnia depends on both the duration and nature of presenting symptoms. People should be given advice on appropriate routines to encourage good sleep, such as avoiding stimulants and maintaining regular sleeping hours with a suitable environment for sleep **(NICE 2004)**. Other non-pharmacological interventions, such as cognitive behavioural therapy, are used for the management of persistent insomnia **(NICE 2004)**. Drugs to induce sleep (hypnotics) can provide relief from the symptoms of insomnia, but do not treat any underlying cause. Expert bodies have long advised that use of hypnotics for insomnia should be limited to short courses for acutely distressed patients **(Joint Formulary Committee 2009)**.

Despite this, in England, around 10 million prescriptions for hypnotics are dispensed every year **(PCA 2007)**. Around 80% of all such prescriptions are for people aged 65 years or over **(Curren 2003)**, and many patients remain on the drugs for months or years **(Taylor 1998)**. Such prescribing carries many potential hazards for patients, including risk of dependence, accidents and other adverse effects on health **(Joint Formulary Committee 2009)**.

### Clinical research

Reviews are consistent in showing that most trials have found acupuncture (or acupressure or related procedures) to be significantly more effective than hypnotic drugs (usually benzodiazepines), no treatment, or sham acupuncture (Sun 2010, Cao 2009, Yeung 2009, Lee 2008, Cheuk 2007). Meta-analysis supports these conclusions. Nevertheless, reviewers have been cautious in their recommendations because of the poor methodological quality of most trials; rigorous, large scale studies are needed to address this. There are now substantial numbers of more recent (published subsequent to the reviews' data collection) randomised trials with positive results, though not for every sleep measure used in every trial (Luo 2010, Reza 2010, Yeung 2009, Lee 2009a, Huang 2009, and others). On the evidence that we have, given that acupuncture appears

to be at least as effective as existing conventional drugs, without their level of side effects, it could be considered as one of the therapeutic options for insomnia. (See Evidence summaries).

Acupuncture can be safely combined with conventional medical treatments for insomnia, such as benzodiazepines, helping to reduce their side effects and enhance their beneficial effects (Cao et al 2009).

### Potential mechanisms

In general, acupuncture is believed to stimulate the nervous system and cause the release of neurochemical messenger molecules. The resulting biochemical changes influence the body's homeostatic mechanisms, thus promoting physical and emotional well-being. Stimulation of certain acupuncture points has been shown to affect areas of the brain that are known to reduce sensitivity to pain and stress, as well as promoting relaxation and deactivating the 'analytical' brain, which is responsible for insomnia and anxiety (Hui 2010).

Research has shown that acupuncture treatment may specifically be of benefit in people with insomnia by:

- increasing nocturnal endogenous melatonin secretion (Spence et al 2004).
- Stimulating opioid (especially b-endorphin) production and  $\mu$ -opioid receptor activity (Cheng et al 2009).
- Increasing nitric oxide synthase activity and nitric oxide content, helping to promote normal function of brain tissues, which could help to regulate sleep (Gao et al 2007).
- Increasing cerebral blood flow (Yan 2010) reducing sympathetic nervous system activity, hence increasing relaxation (Lee 2009a) regulating levels of neurotransmitters (or their modulators) such as serotonin, noradrenaline, dopamine, GABA and neuropeptide Y; hence altering the brain's mood chemistry to help to increase relaxation and reduce tension (Lee 2009b; Samuels 2008; Zhou 2008).

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