ANTI-ANXIETY DRUGS

A certain amount of stress can be beneficial, providing a stimulus to action. But too much will often result in anxiety, which might be described as fear or apprehension not caused by real danger.

Clinically, anxiety arises when the balance of certain chemicals in the brain is disturbed. The fearful feelings increase brain activity, stimulating the sympathetic nervous system (see p.35), and often triggers physical symptoms, for example, breathlessness, shaking, palpitations, digestive distress, and headaches.

Why they are used

Anti-anxiety drugs (also called anxiolytics or minor tranquillizers) are prescribed for short-term relief of severe anxiety and nervousness caused by psychological problems. But these drugs cannot resolve the causes. Tackling the underlying problem through counselling and perhaps psychotherapy offer the best hope of a long-term solution. Anti-anxiety drugs are also used in hospitals to calm and relax people who are undergoing uncomfortable medical procedures.

There are two main classes of drugs for relieving anxiety: benzodiazepines and beta blockers. Benzodiazepines are the most widely used, given as a regular treatment for short periods to promote relaxation. Most benzodiazepines have a strong sedative effect, helping to relieve the insomnia that accompanies anxiety (see also Sleeping drugs, facing page).

Beta blockers are mainly used to reduce physical symptoms of anxiety, such as shaking and palpitations. These drugs are commonly prescribed for people who feel excessively anxious in certain situations, such as interviews or public appearances.

Many antidepressants, including SSRIs, clomipramine, and venlafaxine, are proving useful in some anxiety disorders.

How they work

Benzodiazepines and related drugs

These drugs depress activity in the part of the brain that controls emotion by promoting the action of the neurotransmitter gamma-aminobutyric acid (GABA) which binds to neurons, blocking transmission of electrical impulses and thus reducing communication between brain cells. Benzodiazepines increase the inhibitory effect of GABA on brain cells (see Action of benzodiazepines and related drugs, above), preventing the excessive brain activity that causes anxiety.

Buspirone is different from other anti-anxiety drugs; it binds mainly to serotonin (another neurotransmitter) receptors and does not cause drowsiness. Its effect is not felt for at least two weeks after starting treatment.

Beta blockers

The physical symptoms of anxiety are produced by an increase in the activity of the sympathetic nervous system. Sympathetic nerve endings release a chemical transmitter called norepinephrine (noradrenaline) that stimulates the heart, digestive system, and other organs. Beta blockers block the action of noradrenaline in the body, reducing the physical symptoms of anxiety. For more information on beta blockers, see p.55.

How they affect you

Benzodiazepines and related drugs reduce feelings of restlessness and agitation, slow mental activity, and often produce drowsiness. They are said to reduce motivation and, if they are taken in large doses, may lead to apathy. They also have a relaxing effect on the muscles, and some benzodiazepines are used specifically for that purpose (see Muscle relaxants, p.78).

Minor adverse effects of these drugs include dizziness and forgetfulness. People who need to drive or operate potentially dangerous machinery should be aware that their reactions may be slowed. Because the brain soon becomes tolerant to and dependent on their effects, benzodiazepines are usually effective for only a few weeks at a time.

Beta blockers reduce the physical symptoms associated with anxiety, which may promote greater mental calmness. As they do not cause drowsiness they are safer for people who need to drive.

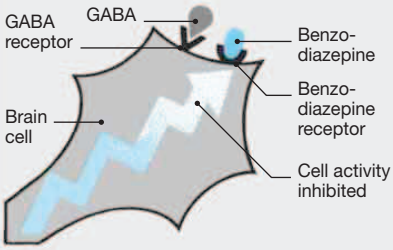
Risks and special precautions

The benzodiazepines are safe for most people and less dangerous in overdose than other sedative drugs. The main risk is psychological and physical dependence, especially for regular users or with larger-than-average doses. For this reason, they are usually given for courses of two weeks or less. If they have been used for longer, they should be withdrawn gradually under medical supervision. If they are stopped suddenly, withdrawal symptoms, such as excessive anxiety, nightmares, and restlessness, may occur.

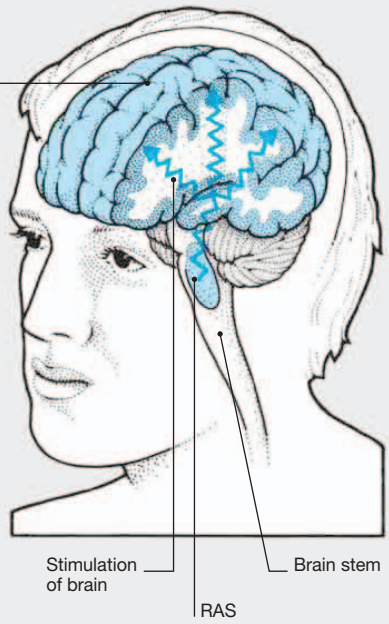
Benzodiazepines have been abused for their sedative effect, and are therefore prescribed with caution for people with a history of drug or alcohol abuse.

ACTION OF BENZODIAZEPINES AND RELATED DRUGS

Action on the brain
The reticular activating system (RAS) in the brain stem controls the level of mental activity by stimulating higher centres of the brain controlling consciousness. Benzodiazepines and related drugs depress the RAS, relieving anxiety. In larger doses they depress the RAS sufficiently to cause drowsiness and sleep.



Action on brain cells in the RAS
Brain cell activity is normally inhibited by GABA, a chemical that binds to specialized cell receptors. Brain cells also have receptors for benzodiazepines. The drug binds to its receptor and promotes the inhibitory effect of GABA, thereby depressin g brain cell activity in the RAS.



COMMON DRUGS

Benzodiazepines
Alprazolam
Chlordiazepoxide
Diazepam/
Lorazepam ✻
Oxazepam

Beta blockers
Atenolol ✻
Bisoprolol ✻
Oxprenolol
Propranolol ✻

Other non-benzodiazepines
Buspirone

✻ See Part 3