## Psychology review Biological treatments

Combat the symptoms of schizophrenia

SNRIs, e.g.

clomipramine'

SSRIs, e.g.

prozac

Atypical drugs,

e.g. clozapine

Anti-psychotic drugs

Block the action of neurotransmitter dopamine by binding to it (not stimulating dopamine receptors)

Typical drugs, e.g.

chlorpromazine

36 million prescriptions in the UK

> Anti-depressant drugs

Work by prolonging the activity of neurotransmitters (see Box 1)

## Box | Depression and the brain

In normal brains, neurotransmitters are constantly being released from nerve endings (at a synapse). To terminate their action, neurotransmitters are re-absorbed into the nerve endings or broken down by enzymes. Depression may be due to insufficient levels of the neurotransmitter serotonin being produced in the nerve endings. Anti-depressant drugs work by either blocking the enzymes that breakdown neurotransmitters or preventing their re-absorption into nerve endings.

Temporarily occupy the dopamine receptors

Then rapidly dissociate to allow normal dopamine transmission

> Lower levels of side effects, e.a. involuntary movements of the mouth

Increase levels of noradrenaline as well as serotonin

> Work by preventing re-absorption of serotonin

Block transporter mechanism after cell has fired

More serotonin left at synapse

> Continue to stimulate the postsynaptic neuron

> > Reduce symptoms of depression

Person feels calmer

Reduce serotonin activity (which has an arousing effect)

Benzodiazipines

Enhance the action of GABA (see Box 2)

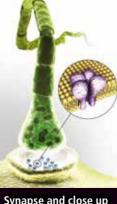
> Person feels calmer

## Box 2 The role of GABA

GABA is a neurotransmitter that is the body's natural form of anxiety relief. When released, GABA has a

quieting effect on many neurons in the brain. Around 40% of neurons respond to GABA.

GABA locks into special receptors in the neuron. This opens a channel which allows the flow of chloride ions into the neuron. It is these chloride ions which make it harder for the neuron to be stimulated, slowing down its activity and increasing the sense of relaxation.



Synapse and close up of GABA receptor

Reduce symptoms of anxiety

Slow down central nervous system

Improve performance

Anti-anxiety drugs

Bind to beta-receptors on the cells of the heart (and other parts of the body stimulated by arousal)

Beta blockers

Slow down activity of adrenaline and noradrenaline

Blood vessels do not contract so easily

Lower blood pressure

Slow the heart rate

Person feels calmer

Less stress on the heart

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