Biological treatments for mental illnesses

Treatment 1: Antidepressants

One common treatment for someone who is experiencing depression is antidepressant drugs. There are a number of different antidepressant drugs and each drug work in slightly different ways. Generally, antidepressants work by raising the levels of monoamine neurotransmitters in the brain.

What are antidepressants and how do they work?

Monoamine oxidase inhibitors (MAOIs) prevent the breakdown of serotonin, noradrenaline and dopamine. This means that the levels of all three monoamines build up. One type of antidepressant Tricyclics prevent serotonin and noradrenaline being absorbed after they have crossed a synapse (again increasing their levels). These are effective at reducing the symptoms of depression, however they interfere with a number of neurotransmitters and have serious side effects for example drowsiness, dry mouth and constipation.

Newer antidepressants work on one monoamine only (compared to MAOI which worked on all three). These are as follows:

- Selective serotonin reuptake inhibitors (SSRIs) such as Prozac and Seroxat stop serotonin being reabsorbed and broken down after it has crossed the synapse.
- Noradrenaline uptake inhibitors (NRIs) do the same with noradrenaline.

The prescription of antidepressants

It is important to have a number of anti-depressants available because individual patients vary in how they respond to each drug – in terms of their symptoms and the side effects. Different people present different symptoms and this can influence the choice of drug. NRIs for example may be particularly useful for motivating patients whose depression has left them inactive. Similarly, Gender influences the prescription. Women suffer more side effects than men from tricyclic antidepressants so the latter is more appropriate (and prescribed more) to men.

Ethical issue: It is widely believed that antipsychotic drugs have been used in hospitals to make patients calmer and easier for the staff to work with, rather than being used to benefit the patients. This practice is seen by some as human rights abuse.

Ethical issue: There are a range of side effects which come from the use of antipsychotic drugs. Older antipsychotics such as Chlorpromazine are associated with dizziness, agitation, sleepiness, weight gain and itchy skin. Long term use can result in damage to the central nervous system which manifests as involuntary facial movements (this is called tardive dyskinesia).
Treatment 2: Electroconvulsive therapy (ECT)

One way to treat depression is through ECT. The procedure involves administering an electric shock for a fraction of a second to the head, inducing a seizure similar to epilepsy. In most incidences, the shocks are bilateral (given to both sides of the head). This is considered more effective than unilateral (given to only one side of the head). The seizure lasts between 15 and 60 seconds. A typical course of treatment might run for two to three weeks with the ECT being repeated between six and twelve times.

According to the NHS there were 7,000 treatments in England and Scotland in 2011, compared with 12,800 between January-March 2002 and 16,500 for the same quarter in 1999

Ethical issue: ECT is controversial. In its early use the shock was relatively large and given without anaesthetics or muscle relaxers. This resulted in broken bones and burns to the brain.

Modern ECT involves:

- Small shocks for short periods (typically 800 milliamps for a fraction of a second)
- Given under anaesthetic and using drugs to paralyse muscles to prevent injury (eg broken bones)

ECT: Perception versus Reality

ECT is often dramatized in popular culture and media.  
Source: Still from One Flew Over the Cuckoo's Nest

In practice, ECT has a long history as a treatment for the most severe cases of mental illness.  
Source: Affinity Magazine