

17.1 Somatic/biomedical treatments 1

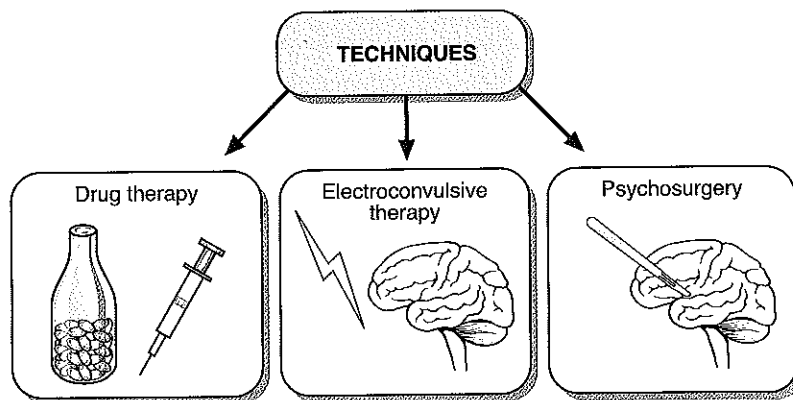
AIM OF THERAPIES

To cure the underlying physical causes of mental illness or to alleviate the symptoms of these causes.

Physically based treatments for mental disorder have a long and horrific history – ranging from bleeding, vomiting, and high speed rotation, to cold baths, and insulin coma therapy.

Biological treatments have been applied to a range of disorders and have the highest success rates with serious psychoses.

However, they involve powerful techniques that can cause many side effects.



PSYCHOSURGERY

TECHNIQUE

Neolithic skulls with trepanned holes in were perhaps the first attempts at physically rectifying mental problems. When Moniz introduced psychosurgery in the form of prefrontal lobotomy in 1935, some might argue that the scientific justification and techniques were not much more advanced. Prefrontal lobotomy involved severing the connection between the frontal lobes of the brain and the deeper underlying structures (often by hammering a rod through the eye socket and rotating it around) in the hope of producing calm and rational behaviour. Today only very precise bundles of nerve fibres are destroyed, but it should still be noted that the effects are irreversible.

APPLICATION

Psychosurgery was originally performed on tens of thousands for a wide variety of mood, anxiety and personality disorders, but was especially employed for schizophrenia because of its dramatic symptoms and resistance to treatment (before drug therapy). Today it is usually used mainly as a last resort for severe depression or obsessive compulsive disorder, but virtually never for schizophrenia.

EFFECTIVENESS

Psychosurgery was initially hailed as a 'wonder cure' for psychoses, probably due to the need for a cheap, effective, and 'scientific' treatment to give the mental health profession respectability (Valenstein, 1986). However, long term follow up studies of prefrontal lobotomy patients found it to be ineffective at combating the precise symptoms of disorders. A National Commission review of psychosurgery in the USA in 1976, concluded that psychosurgery could be effective for certain disorders, such as severe depression.

APPROPRIATENESS

The indiscriminate use of psychosurgery between 1935 and 1955 led to it virtually becoming a method of social control. The development of drug therapy replaced it. Many undesirable psychological side effects were produced in most patients with prefrontal lobotomies, such as profound changes in personality, motivation, and cognitive abilities (Barahal, 1958). Patients also suffered seizures and a 1–4% likelihood of death.

ELECTROCONVULSIVE THERAPY

TECHNIQUE

ECT involves applying an electric shock of approximately 100 volts to one side of the brain (unilateral ECT) or both sides (bilateral ECT) to induce a seizure. When the patient recovers, they remember nothing of the treatment, but report a relief of symptoms. The treatment is usually repeated at least six times over a period of around 3 or 4 weeks. Unilateral shocks are usually administered to the non-dominant hemisphere and muscle relaxants and anaesthetic are given to reduce physical damage.

APPLICATION

ECT was originally applied to schizophrenics under the mistaken assumption that they did not suffer epilepsy (which involves disruptive electrical activity in the brain). Today ECT is rarely applied to schizophrenics but is used to treat severe cases of depression, usually if drug treatment has failed and the risk of suicide is high.

EFFECTIVENESS

ECT is considered a very effective treatment for depression, producing symptom relief in 60–80% of cases. However, its mode of action is unknown. Possible explanations are that the shock

- destroys neurones in brain areas responsible for emotion
- affects the balance of neurotransmitters involved in emotion
- acts as a form of punishment for depressive behaviour or negative reinforcement for recovery behaviour (feeling better to avoid shocks)
- produces memory loss that allows thoughts to be restructured.

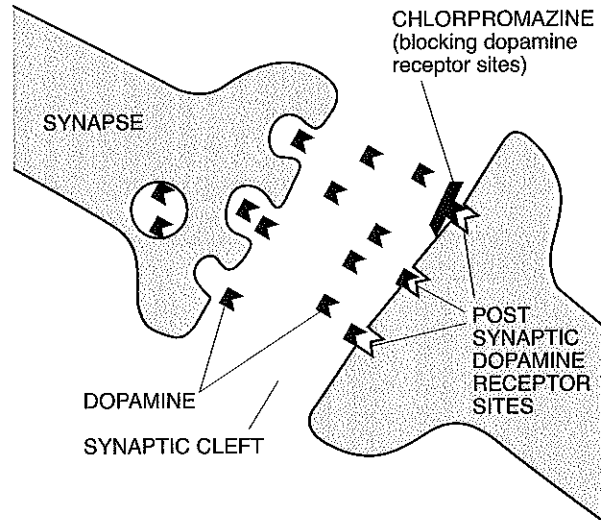
APPROPRIATENESS

ECT replaced insulin coma therapy, being a more controllable and less risky procedure. However, ECT has been over-used and abused in the opinion of many and does cause side effects such as memory loss and around a 3 in 10,000 mortality risk. Ethical problems arise with using a treatment whose mode of action is unknown and also with consent (should ECT be forcibly applied to depressed patients with a high risk of suicide?). ECT can save lives.

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DRUG THERAPY

Many drugs are used to treat a wide variety of disorders. Neuroleptic drugs are thought to have their effect by controlling the activity of brain neurotransmitters at the synapse.



APPLICATIONS

Anti-psychotic drugs

Drugs such as the phenothiazine chlorpromazine are used to reduce the activity of the neurotransmitter dopamine by blocking its post synaptic receptor sites, while a more recent anti-psychotic drug, clozapine, blocks serotonin receptors.

Anti-depressant drugs

Each group of anti-depressant drugs work in a different way:

- Tricyclic anti-depressants, such as imipramine, work by blocking the re-uptake of neurotransmitters like norepinephrine, making more of it available.
- Monoamine oxidase (MAO) inhibitors, increase the amount of norepinephrine available by inhibiting the enzyme (monoamine oxidase) which breaks it down.
- Selective serotonin reuptake inhibitors (SSRIs), such as Prozac, specifically increase the amount of serotonin available in the synaptic cleft.
- Lithium carbonate effectively reduces both the effects of mania and depression in manic depressives.

Anti-anxiety drugs

Often termed minor tranquillisers, drugs like valium have been administered to reduce anxiety disorders and panic attacks.

EFFECTIVENESS OF DRUG TREATMENT

- Anti-psychotic drugs have massively reduced the need for institutionalisation, enabling many schizophrenics to be cared for in the community. However, around 25% of schizophrenics do not improve on traditional neuroleptics and a further 30–40% do not show full remission of symptoms. More recent anti-psychotic drugs, such as Clozapine have been found to improve both positive and negative symptoms in around 50% of those who resisted previous drugs, perhaps because they affect the neurotransmitter serotonin.
- The tricyclic anti-depressants have a delayed effect, providing relief in up to 75% of all cases after 2 to 3 weeks. Although not all patients respond to them, they are generally more effective than MAO inhibitors. SSRIs, like Prozac, have been shown to be of equal effectiveness to prior anti-depressants, are easier to administer, and have less unpleasant side-effects. Lithium carbonate has proven very successful at countering bipolar depression – up to 80% show full or partial recovery, and its use can decrease the risk of relapse.
- Typically, anti-anxiety drugs, such as valium, have been shown to be beneficial for those suffering from generalised anxiety disorder, but not those suffering from panic attacks or obsessive compulsive disorder. Anti-depressant drugs are usually used in these latter cases, and some studies have shown them to be effective for obsessive compulsive disorder in up to 50% of cases.
- The effectiveness of drugs is best tested by using longitudinal studies with placebo (fake pill) control groups and double blind assessment techniques (where neither the patient nor the doctor assessing improvement knows who is receiving the real drug).

APPROPRIATENESS OF DRUG TREATMENT

Side effects:

- Phenothiazines can produce many unpleasant minor side-effects for schizophrenics, such as dryness of the mouth and throat, drowsiness, and weight gain or loss; and two major side-effects – symptoms similar to Parkinson's disease (body stiffness or body spasms), and tardive dyskinesia (involuntary movements of the tongue and mouth).
- Clozapine does not appear to produce the above side-effects in schizophrenics, but does produce a lethal blood condition in about 1% of patients. Weekly white blood cell monitoring is required.
- MAO inhibitors can be lethal if combined with certain foods such as cheese, and tricyclics can produce weight gain, drowsiness, and constipation. SSRIs appear relatively free of side-effects. Lithium carbonate requires close medical supervision.
- Anti-anxiety drugs can produce physiological and psychological dependence or addiction in approximately 40% of cases after 6 months.

Not a complete cure:

- Anti-schizophrenic drugs have been called pharmacological strait-jackets – they only alleviate or contain symptoms rather than providing a complete 'cure'. While they have enabled care in the community, hospital re-admission rates are very high – the relapse rate is around 70% in the first year after discharge if the patient discontinues medication (which is likely given the side effects). Anti-anxiety and depression drugs do not 'cure' either.
- No drug has provided a specific, 100% cure for any mental disorder, and the neurochemical reasons for their effectiveness are still a subject of much debate.
- The biological approach may neglect many important psychological or social factors that contribute to the development of the disorder or its treatment. Social skills training for schizophrenics and their families, for example, will help them readjust to living in society, while cognitive and behavioural therapy may be necessary to overcome anxiety disorders and depression completely.