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Psychosis: general information on the process and treatment of psychosis

Edited version of a paper delivered at the Murray Valley branch of the Mental Illness Fellowship Victoria by Warwick Brewer, Neuropsychologist, Cognitive Psychiatry Unit, Mental Health Research Institute, Victoria. Printed in the Fellowship News Edition No 76 1999.

The effect of psychosis on the brain

Psychosis is the event that occurs when the brain discharges an abnormal degree of electro-chemical energy. This event usually occurs out of the control of the person to whom it is happening and can be likened to a slowed form of epilepsy.

A simple way to imagine what psychosis is like is to picture the vulnerable brain as a collection of old toasters wired where some part of that circuitry has been weakened, just like the result of someone bending a part of those wires continually. When electric potential (or pressure) is forced through those circuits at a higher level than that weakened part of the circuit can handle, it will glow and may spark off electric discharge. That process of electric release is the equivalent of psychosis.

Stressful emotional events can trigger abnormal levels of electro-chemical activity (or psychosis) in the brain, especially in the important central part of the brain which mediates the processing of new information and emotions. This part of the brain is called the limbic system.

When a person experiences a stressful event, this emotional part of the brain becomes energised above a normal level of functioning. If that event remains prolonged, then you can imagine that the brain suffers stress similar to what the body would suffer if it had adrenalin pumping through it for 24 hours.

If that stress is not released safely it may accumulate until it is released as a psychotic discharge, usually through the weakest part of the brain. We know this occurs when a person starts to exhibit behaviour such as delusional or bizarre ideas, paranoia, hallucinations, disordered language and thoughts and attention and memory problems.

If this process is not treated, it becomes toxic and damages the brain, although the person cannot feel it happening as there are no pain receptors in the brain. If it occurs continually for at least a month over a six month period it usually warrants the diagnosis of schizophrenia. Consequently, symptoms such as loss of motivation, reduced movement, poor socialisation, poor ability to form and maintain relationships, reduced levels of enjoyment, reduced verbal interaction, reduced memory and organisational ability may emerge after about two or three years.

Long term stresses/stressors can be difficulties with finding an adequate sense of self, reduced IQ, poor coping strategies, personality weaknesses, family history of psychiatric illness and emotionally difficult family relationships. Short term stresses/stressors include illicit substance abuse (which also weakens the brain's ability to cope with stress), relationship breakdown, exam failure, changing important structures in the environment and the end of adolescence.

The effect of medication on the brain

Just as the best treatment for broken bones is a plaster cast, the best treatment for the physical and toxic effects of psychosis on the brain is medication.

Medication can be likened to a protective buffer between the toxic levels of electro-chemical activity and the physical part of the brain.

Twenty years ago the only available medications (typical antipsychotics) for psychosis ended up affecting the whole brain rather than the specific part that was weakened. Consequently, patients suffered a range of very uncomfortable side effects. This can be likened to putting the whole body in plaster for one broken bone.

Newer antipsychotic medication

More recently, atypical antipsychotic medications such as Clozapine and Risperidone have become available which act as a buffer in the specific parts of the brain that we now know are highly likely to contain the site of the psychotic discharge.

When a person first suffers psychosis, the chances are that it is their limbic system, or the emotional centre of the brain, that is primarily affected. Current treatment includes prescribing low doses of Risperidone at the first episode of psychosis, as there is some evidence that Risperidone assists and protects functions in this part of the brain. Many patients respond well to such medication. Unfortunately, when they are released from hospital many choose to take themselves off the medication because they think they are not going to become unwell again. A person who has been psychotic once has suffered the particular process of psychosis in a manner that manifests from vulnerable areas of brain tissue. After a psychotic episode, the brain is effectively weakened further and remains more vulnerable than before.

Repeated psychotic events

The nature of the brain is such that when it receives an antipsychotic medication it becomes stabilised on that medication. Receptors or channels for the medication may grow in number to absorb the extra levels of chemicals, and if those chemical medications are stopped, the extra receptors begin to starve and eventually cease functioning. A reintroduction of medication at the next psychosis will result in the brain learning to grow less receptors than it had learned from the first experience, where some of those receptors had stopped functioning. Therefore, the reintroduction of medication will have less effect than it did the first time round. Repeated admissions to hospital interspersed by non-compliance will result in most medications not having any effect at all, or that they are required at increasingly higher doses to the point where they begin to produce more severe side effects.

Unfortunately, such brain insult by repeated psychosis and non-compliance results in early damage in the limbic system travelling to the frontal part of the brain. We need this for the more 'human' aspects of behaviour such as maintenance of social relationships and communication, motivation, organisation and planning ability, organisation of speech, thoughts and of future plans, insight and awareness of socially appropriate behaviour, understanding social rules, and enjoyment of life. These same problems also emerge due to the process of psychosis itself.

Such a person becomes increasingly reliant on a routine structure being provided for them by other carers. In other words, brain energy levels become less able to sustain those higher or more advanced

demands of human life that most healthy people have quite naturally. Rather, such a person's brain struggles to cope with even a small amount of social and environmental stimulation. Such a person also becomes increasingly vulnerable to stress, especially to changes in the environment, and to changes in balanced relationships. They tend to become more sensitive to how other people react to them and thus end up stressed more easily. Some behaviour becomes more dramatic in response to more trivial events, while other behaviour shows that they hardly respond at all.

Psychiatrists are bound by law to provide the best possible treatment and currently, medication is one of the most appropriate treatments for many chronic patients. Atypical medications such as Clozapine, for example, have resulted in many patients with chronic illness being released from hospital, when even up to six to 10 years ago, the chances were that those same patients would have stayed in hospital for 15-20 years, or forever.

Clozapine is a very powerful antipsychotic. It is not used lightly, and it becomes antitherapeutic if people are prescribed it and then become non-adherent. The nature of Clozapine is such that some chronic patients may begin to see their psychotic symptoms settle down within three months. However, a considerable proportion of patients may not start to improve until anywhere between 12-18 months. An even smaller proportion may not improve at all. In America, recommendations have been made to persist for up to two years in some more chronically treatment-resistant patients.

Useful references

Mental Illness Fellowship of Australia
www.mifa.org.au

Mental Illness Fellowship Victoria
www.mifellowship.org

Mental Health Services Website (Vic)
www.health.vic.gov.au/mentalhealth

National Alliance of the Mentally Ill (NAMI) (USA)
www.nami.org

Mental Health Council of Australia
www.mhca.com.au

SANE Australia
www.sane.org

Beyond Blue
www.beyondblue.org.au

Mental Illness Fellowship of Australia fact sheets

What can friends and family do to help a person experiencing mental illness?

Understanding psychosis

Understanding schizophrenia

Understanding bipolar disorder

Understanding schizoaffective disorder



Mental Illness Fellowship of Australia
08 8221 5072 www.mifa.org.au
Mental Illness Fellowship Nth Qld Inc
07 4725 3664 www.mifnq.org.au
Schizophrenia Fellowship of Qld Inc
07 3358 4424 www.sfq.org.au

Mental Illness Fellowship of
Sth Australia Inc
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Mental Health Carers NT
08 8948 1051
www.mentalhealthcarersnt.org



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Schizophrenia Fellowship of NSW Inc
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Mental Illness Fellowship of the ACT Inc
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