



Cognitive changes after encephalitis

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Cognition refers to mental processes such as attention, memory, language, problem solving, decision making, planning and organisation. These processes support our everyday activities from running a household, maintaining friendships, working, driving and studying. Following encephalitis, an individual will experience changes in these mental abilities to varying degrees and, in turn, may have difficulties in their everyday activities. The pattern of cognitive impairments following encephalitis will be different from person to person, depending on the brain systems affected and the type of encephalitis. A neuropsychological assessment is recommended to determine the pattern of cognitive changes following encephalitis, to then develop a rehabilitation plan to allow an individual to manage their cognitive problems and improve their everyday functioning.

Information processing (thinking things through)

Information processing refers to the ability to think quickly, pay attention and concentrate. Attention refers to the ability to focus on one task, to take in information, or to do two things at once.

Concentration generally refers to the ability to sustain attention across a period of time or a task.

Individuals affected by encephalitis may have difficulty processing information quickly, which may make them slower to respond to questions or create a need for increased time to complete tasks. It may be difficult to concentrate, with increased distractibility and poor mental stamina across the day.

Following encephalitis, it may also be difficult to take in and process information leading to an overload of information and a sense of being overwhelmed by conversation or noise.

Memory

Confronted with someone who has memory problems following encephalitis, it is very important to remember that memory can be affected in different ways. It may be difficult to:

- remember recent events, such as what happened last week, where a belonging was left within the house or conversations.
- follow directions and find locations.
- learn a new skill, such as lessons at school or how to use a new mobile phone.
- remember events and people from their life before the encephalitis.
- remember what has to be done at a future time, such as appointments or paying a bill next week.
- remember people's names.
- remember what they have read and following the storyline of a movie.

Language

Many people experience language difficulties following encephalitis with difficulty understanding what is said to them or with what they want to say. Some people have difficulty finding the right word. It may be evident that the person has problems with language, in that it is disjointed or is fluent but doesn't seem to make sense. Other people may also find it difficult to take in and understand conversations so that an individual experiences an overload of information. Others may find it difficult to stick to the topic or 'monopolise' conversation.

Difficulty with receptive (understanding) and/or expressive language following a brain injury is termed aphasia.

Executive function

The term 'executive function' refers to the high level cognitive skills required to identify and successfully complete goals. This includes abilities such as planning, problem solving, organisation, flexibility in changing a strategy that is not being effective, and holding back inappropriate responses. Difficulty in one or all of these areas occurs to varying degrees following encephalitis with a significant impact on everyday life and relationships. People may struggle with low motivation or drive, fail to

complete tasks once started or have trouble juggling multiple tasks at work. They may appear to be 'less organised' than they used to be and have difficulty making plans

Insight

Following encephalitis, an individual may have reduced awareness of their difficulties as a direct result of the brain systems affected. It may be hard for them to recognise changes in their thinking or behaviour and how such changes affect their everyday life, including driving, working and relationships. An individual may also have difficulty adjusting to the impact of the encephalitis and deny that they have any problems. Both reduced insight and denial of problems pose challenges for family members.

Prosopagnosia

Prosopagnosia (face blindness) is characterized by severe difficulties in face recognition. People with the condition cannot recognise the faces of their closest friends and family, and often their own face. The pure form of the condition means people do not have any other difficulties and they can access all their stored knowledge about a person once they know their name. They can also still recognize objects. However, the pure form of prosopagnosia is very rare. Most people who acquire face recognition difficulties experience other cognitive and visual difficulties alongside the condition because brain injury tends to affect a number of brain regions. For more detailed information on this rare condition please read the **Prosopagnosia** factsheet.

Confabulation

Confabulation refers to a memory problem whereby a person believes an incorrect or 'false' memory is real and are unable to realise that what they are remembering did not happen. It is caused by the combination of both memory and executive dysfunction.

This can be difficult to understand. A good way of thinking about it is that all of us from time to time make mistakes in what we remember. Usually we realise our mistake, we have a feeling that it is not quite right. However, when someone had a brain injury, the person stops realising they are making a mistake. For example, the affected person might tell you in great detail how his or her parents visited last night, and later you discover that the mother died four years ago and the father died twenty years ago. For more detailed information on this complex condition please read our **Confabulation** factsheet.

For information on how to deal with the cognitive changes after encephalitis, please read **Encephalitis: after-effects, recovery and rehabilitation** booklet.

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Thank you!

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