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Review article

A review on amnesia

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ABSTRACT

Amnesia means loss of memory sometimes including the memory of personal identity due to brain injury, shock, fatigue, repression or illness. The main cause of Amnesia is brain damage. There are six different types of amnesia includes anterograde amnesia, retrograde amnesia, Transient Global Amnesia, Dissociative amnesia, Infantile amnesia, Wernike-Korsakoff's psychosis. Physical examination, Cognitive tests and Imaging tests are used for diagnosis of amnesia. Treatment includes Cognitive therapy, Psychotherapy and occupational therapy.

Keywords: Amnesia, Brain injury, Cognitive therapy and Psychotherapy.

DEFINITION

Amnesia is a profound memory loss which is usually caused either by physical injury to the brain or by the ingestion of a toxic substance which affects the brain. In addition, the memory loss can be caused by a traumatic, emotional event, shock, illness or sometimes induced by anesthesia. Some amnesia are severe and irreversible and some are mild can be reversible. The severity of the amnesia depends on how and which part of the brain is affected and damaged. It can affect anyone, male or female. It can occur at any age.

DISCOVERY

A French psychologist Theodule-Armand Ribot was among the first scientists to study amnesia. Because of this, medical experts started to call the gradients of memory loss as Ribot gradients. He proposed Ribot's Law which states that there is a time gradient in retrograde amnesia. The law follows a logical progression of memory-loss due to disease. First, a patient loses the recent memories, then personal memories, and finally

intellectual memories. He implied that the most recent memories were lost first.

SYMPTOMS

The two main features of amnesia are,

- Impaired ability to learn new information following the onset of amnesia (anterograde amnesia)
- Impaired ability to recall past events and previously familiar information (retrograde amnesia)

Additional signs and symptoms

Depending on the cause of the amnesia, other signs and symptoms may include:

- False recollections (confabulation), either completely invented or made up of genuine memories misplaced in time
- Neurological problems such as uncoordinated movements, tremors or seizures
- Confusion or disorientation

CAUSES

Amnesia caused by brain injury or damage is known as neurological or organic amnesia. Possible causes of amnesia include,

- Stroke
- Brain inflammation (encephalitis) resulting from infection with a virus such as herpes simplex virus or as an autoimmune reaction to cancer somewhere else in the body (paraneoplastic limbic encephalitis)
- Lack of adequate oxygen in the brain
- Long-term alcohol abuse leading to thiamine (vitamin B-1) deficiency (Wernicke-Korsakoff syndrome)
- Tumors in areas of the brain that control memory
- Degenerative brain diseases, such as Alzheimer's disease and other forms of dementia
- Seizures
- Electro convulsive therapy, a procedure in which electrical currents are passed through the brain, sometimes used to treat certain mental illnesses
- Certain medications, such as benzodiazepines
- Head injuries, such as those sustained in car accidents, can lead to confusion and problems remembering new information
- Depression, bipolar disorder, or schizophrenia when symptoms have not been well controlled
- Nutritional problems (vitamin deficiencies such as low vitamin B12)
- Illness that results in the loss of, or damage to, nerve cells (neurodegenerative illness), such as disease, Huntington's, or multiple sclerosis

TYPES

There are mainly six types. They include,

A) Retrograde amnesia

Retrograde amnesia is one of the most familiar types of amnesia. People affected with this type have trouble and inability to recalling the past before the amnesia started. However, they can create, form and recall memories from the point of amnesia and forward. The condition is caused either by disease or a brain injury, especially in areas linked with episodic memory-the hippocampus and the median temporal lobes. Sometimes it is also caused by a severe blow to the head for example from a car accident or a

nasty fall. Parts of the brain where the past memories are stored are damaged and cannot be accessed by the brain anymore, thus causing the amnesia.

B) Anterograde amnesia

Anterograde amnesia is the opposite of retrograde amnesia. People affected with this type have trouble and inability to create and form new memories. They can easily forget events as they happen, names or faces of people they just meet but memories from the past can easily be remembered by them. It happens as a result of brain trauma that involves the hippocampus, fornix, or mammillary bodies. Their long term memory is intact while the part of the brain processing the short term memory is altered that is why they have the trouble recalling the present event and situation, however people suffering from this kind of amnesia can learn new skills and can recall how to do them. This type of amnesia is most common from people suffering from dementia or Alzheimer's disease.

C) Transient Global Amnesia (TGA):

Transient global amnesia is the type that is referred to as the severe type. People having this type forget everything; it is a total memory loss. They forget their name, events and they can't even recall who they are before the amnesia. Their identity is somewhat locked up somewhere in their brain and cannot be located as of the moment. However this can be reversed as the brain heals itself but the amnesia can last for days or even years. Some of the victims experience headache, dizziness, and nausea along with memory loss. TGA generally affects fifty to eighty-year-old men. Its incidence is 3.4 to 5.2 people per 100,000 per year and the condition mostly affects 50-80 year olds.

Causes of TGA remain controversial. They include,

1. Emotional stress
2. Strenuous physical exertion
3. Transient ischemic attack, a "mini-stroke."
4. Basilar artery migraine.

D) Dissociative amnesia

Dissociative amnesia is a condition in which the patient is unable to remember vital personal information in a way that has nothing to do with normal forgetfulness. People affected with this type of amnesia retain their general memory but they tend to lose their personality. Stressful situations and personal trauma could cause this type. It is

commonly seen in individuals who have witnessed a violent crime or a grave accident and does not occur due to a medical illness.

Patients with dissociative amnesia do not experience an identity crisis but they tend to pass through a trance-like state and may develop depersonalization as an effort to block out a stressful experience. Subtypes include –

- 1.Generalized amnesia - When the amnesia involves the person's whole life.
2. Localized amnesia - no memory of a specific traumatic event that took place
- 3.Selective amnesia- remembers only selective parts of events that occurred in a defined period of time.
4. Systematized amnesia – memory loss regarding a specific category of information

E) Infantile amnesia

The inability to recall events from early childhood is known as infantile amnesia. It is assumed that this happens due to immaturity in certain areas of the brain in the very early stages. Today, this state is seen as an intricate part of human development as it is now clear that memories begin to form only when certain parts of the brain are well formed.

F)Wernike-Korsakoff'spsychosis

This amnesia is a progressive disorder caused by extended alcohol abuse. It is usually accompanied by neurological dysfunctions such as loss of co-ordination during movement or a feeling of numbness in the fingers and toes.

TESTS AND DIAGNOSIS

Physical examination

The physical examination may include a neurological exam to check reflexes, sensory function, balance, and other physiological aspects of the brain and nervous system.

Cognitive tests

The doctor will test the person's thinking, judgment and recent and long-term memory. He or she will check the person's knowledge of general information -such as the name of the current president - as well as personal information and past events. The memory evaluation can help determine the extent of memory loss and provide insights about what kind of help the person may need.

Imaging tests

Diagnostic imaging tests — including MRI, CT scan and electroencephalogram may be ordered to look for damage or abnormalities in the brain. Blood tests can check for infection, nutritional deficiencies or other issues.

Other tests include

- Cerebral angiography
- Lumbar puncture

TREATMENT

Many forms of amnesia fix themselves without being treated. However, there are a few ways to cope with memory loss if that is not the case.

Cognitive therapy

Usually through a speech/language therapist, may be helpful for mild to moderate memory loss.

Psychotherapy

Sometimes it may be effective for some patients. Hypnosis can be an effective way of recalling memories that have been forgotten.

Occupational therapy

A person with amnesia may work with an occupational therapist to learn new information to replace what was lost, or to use intact memories as a basis for taking in new information. Memory training may also include a variety of strategies for organizing information so that it's easier to remember and for improving understanding of extended conversation.

MEDICATIONS OR SUPPLEMENTS

No medications are currently available for treating most types of amnesia.Sometimes it is appropriate to administer a drug called Amytal (sodium amobarbital) to people suffering from amnesia. The medicine helps some people recall their lost memories.

Wernicke-Korsakoff syndrome involves a lack of thiamine, treatment includes replacing this vitamin and providing proper nutrition. Although treatment, which also needs to include alcohol abstinence, can help prevent further damage, most people won't recover all of their lost memory.

If an underlying cause for the amnesia is identified, there are national organizations that can provide

additional information or support for the individual and their families.

Examples include:

- The Alzheimer's Association
- The Brain Injury Association of America

- Wear a helmet when bicycling and a seat belt when driving.
- Treat any infection quickly so that it doesn't have a chance to spread to the brain.
- Seek immediate medical treatment if you have any symptoms that suggest a stroke or brain aneurysm, such as a severe headache or one-sided numbness or paralysis.

PREVENTION

Because damage to the brain can be a root cause of amnesia, it's important to take steps to minimize a brain injury. For example:

- Avoid excessive alcohol use.

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