

Behavioural facets of stroke

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Neuroscience is a branch of biology, scientifically studying and understanding nervous system. Behavioural neuroscience is subspecialty of neuroscience devoted to the study of brain-behaviour relationships. Neuroscientists found that dysfunction of the brain can interrupt normal behaviour. Behavioural alterations may see in all ages with wide variety of brain disorders that severely disturb cognition and emotional condition of the individual.

Stroke is unquestionably a privileged disease for behavioural studies, because of its high prevalence and incidence. The part of brain damage is different for different stroke patients and each part of the brain controls a specific function of the body. So behavioural changes are not similar for all stroke patients. Injury occurred to the brain affect the personality, emotional and behaviour aspects of the person (1).

Person with left-brain injury has functionality loss of right side of the body called right hemiplegia. These patients more likely to have problems like motor functions, [Broca's] aphasia, speech and language. They also become anxious and tense when faced with new folks (2). A person with right brain injury has functionality loss of left side of the body called left hemiplegia (3). These patients have difficulty in maintaining rate of movement, judging distance, and other spatial problems. Stroke patients with spatial-perceptual problems have more trouble with self-care. They have problems in driving, walking etc.

Behavioural deficits after stroke may occur with different frequencies: Motor deficits [80-85% of patients], somatosensory functions [40-50%], language or aphasia complications [20-25%], visual problems [15-20%], attention or neglect [25-30%], and memory loss [15-25%] (4-8). Most of the Stroke patients normally suffer from more than one type of neurological deficit.

Some other important changes seen in people after stroke attack are: Depression, emotional lability, fear, feelings of frustration, social judgment and lack of motivation. Manifestation of depression after stroke has proposed in late half of twentieth century since then the understanding complication of post stroke depression has gained momentum. The possible risk of occurrence of depression after stroke ranges from 25% to 79% (9). Depression patients suffer irritability, sleeping and eating disorders and also we can observe changes in thinking and way of behaviour with family and colleagues. Increase or gains of emotional changes like inappropriate crying or laughing were commonly observed after stroke attack. Fear is co-morbidity factor with depression in chronic stroke patients. A feeling of frustration is observed after stroke because of difficulty carrying out everyday tasks. Even a minor damage occurred to the brain due to stroke may lead to memory related behavioural changes and thus changes the original character of the person.

Clinical studies conducted on large populations, some important case studies and also neuroimaging findings helps in understanding site specific

damage occur to the brain and thus related behavioural changes observed in stroke patients. This type of determining the behavioural changes is called anatomical functional model of behavioural studies. In most of the cases spontaneous recovery from neuro behavioural deficits after acute stroke is thought to be occur in first two to three months of damage occurred irrespective of anatomical feature that got damaged due to stroke (10). In addition several studies found that recovery from cognitive deficits take longer time period to set the condition.

Even though decades completing after invention of rtPA for stroke treatment. We are still in first step for having therapeutics for stroke recovery. Numbers of preclinical and clinical studies are conducting with plenty of new molecules for inventing new therapeutics for treating brain death but none is worth-full still. Now it is better to investigate therapeutics for treating behavioural changes observed after stroke which may have fruitful outcomes.

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