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Impact of quality of life in acute stroke using national institute of stroke scale

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Abstract
Introduction: A Stroke is a medical condition in which blood flow to the brain results in cell death. There are two main type of stroke ischemic, due to lack of blood flow, and hemorrhagic due to bleeding. This result in part of brain not functioning properly. Quality of life the degree to which an individual is healthy, Comfortable and able to participate in or enjoy life events. Assessing QOL is difficult in stroke, in which patient have heterogeneous stroke symptom and deficits and also commonly suffer from psychological and social sequels of stroke. The NIHSS is a quantitative measure of stroke related neurological deficit with established reliability and validity for use in prospective clinical research.
Aim: To asses impact of quality of life in acute stroke patient using NIHSS scale.
Objective: To examine the quality of life scale in ischemic & hemorrhagic stroke patient using NIHS scale. To compare time duration with QOL in ischemic and hemorrhagic stroke patient. To compare severity with QOL in ischemic and hemorrhagic stroke patients.
Methodology: Observational Study don on 42 stroke patient, patient who are admitted in hospital, selected by purposive sampling they were assessed on NIHS scale.
Data Analysis And Result: Non parametric tests statistical analysis done. In NIHS Scale there is significant difference in both; hemorrhagic stroke had more score than ischemic stroke patient indirectly hemorrhagic patients are more severe than ischemic patients.
Conclusion: From the above study, it conclude that, there deterioration in QOL in both ischemic and hemorrhagic stroke patient by using NIHSS scale. With comparison with duration, in hemorrhagic patient has symptom for longer duration than ischemic stroke patient. In comparison with severity, hemorrhagic stroke more severe than ischemic stroke.

Keywords: National instituted of health stroke scale, Qol, stroke, hemorrhagic, ischemic

1. Introduction
3A Stroke is a medical condition in which blood flow to the brain results in cell death. The sudden death of brain cell due to lack of oxygen, caused by blockage of blood flow or rupture of an artery to the brain, there are two main type of stroke ischemic, due to lack of blood flow, and hemorrhagic due to bleeding. They result in part of brain not functioning properly. Sign and symptoms may include an inability to move or feel on one side of the body, speaking dizziness or loss of vision to one side [1].

Haemorrhagic stroke–intracranial, subarachnoid haemorrhage-sign of raised ICP will be evident with a history of a traumatic accident [3].

According to WHO. It is defined as that sudden onset of neurological deficits due to an abnormality in cerebral circulation with the signs and symptoms lasting for more than 24 hours or longer [1].

Assessing QOL is difficult in stroke, in which patient have heterogeneous stroke symptom and deficits and also commonly suffer from psychological and social sequels of stroke [4].

A responsive QOL measure that include domains commonly affected by stroke would be useful both to evaluate treatment efficacy in patient with different deficits and to assess the impact of various types of stroke on QOL [2].

1.1 Ischemic stroke
1.1.1 Thrombotic: It is more common usually occurs in sleeping hours,

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1.1.2 Embolic: occurs in the walking hours of the day. Sudden onset of symptom preceded by giddiness in most condition [3]

Severity- 1. MILD Stroke: symptom subside with no deficit in a week period, 2. Moderate stroke: symptoms recover in a period of 3-6 months with minimal neurological deficit, 3. severe Stroke: There is no complete recovery of the symptoms even after 1 year. Always ends up with severe neurological deficit [3].

Quality of life the degree to which an individual is healthy. Comfortable, and able to participate in or enjoy life events [4].

A high percentage of studies conducted assess the quality of life of stroke patient have used the generic QOL scale. Assessing QOL implies placing importance not only on observation of the illness by clinicians but also on patient percentage of their own condition and the perception of relatives regarding the impact of the patients need for care [4].

However, scales currently used are diverse, ranging from evaluation characteristics to the time of use. for example, among scales used for the acute phase of cerebral strokes, the national institutes of health stroke scale (NIHSS), Japan stroke scale (JSS) etc. are available for the evaluation of neurological symptoms. These evaluation scales not only help to objectively understand the patient condition, but they are also being used as providers of useful information to plan treatment and predict disease prognosis [5].

The NIHSS is a quantitative measure of stroke–related neurological deficit with established reliability and validity for use in prospective clinical research. The examination can be performed quickly, and the NIHSS score can be assessed by neurologist and no neurologists after appropr3iate training. Consequently, the NIHSS is used in nearly every current stroke study in the United States as measures of the initial and final neurological deficit [6].

2. Need of study
Quality of life is always an issue in stroke patient. No data exist to determine whether widespread use of the NIHSS scale to still more studies at the bedside yields scores. Many studies have been done on quality of life scale in stroke patient. But not much data available on quality of life scale in stroke patient using NIHSS scale in Indian population and also on the impact of QOL relate to severity in Ischemic & Hemorrhagic stroke patients.

3. Aim
To asses impact of quality of life in acute stroke patient using NIHS scale.

4. Objectives
To examine the quality of life scale in ischemic & hemorrhagic stroke patient using NIHS scale. To compare time duration with Quality of Life in ischemic and haemorrhagic stroke patients. To compare severity with Quality of Life in ischemic and haemorrhagic stroke patients.

5. Methodology
Observational study done on 42 stroke patient, patient who are admitted in hospital, selected by purposive sampling they were assessed on NIHS scale. Exclusion Criteria: Non co-operative patient, TIA, Sol, Head Injury, Patient those who are in Coma.

6. Materials
Pen, Paper, Cotton, Scales.

7. Outcome Measure
Nihs Scale.

8. Procedure
Ethical approval was taken from ethical committee. Then according to the inclusion and exclusion criterion patients was selected. Then informed consent was taken. The information sheet was filled by the therapist for each patient. Scoring was done by the Therapist by assessing the patient, and data was collected. SCALE-NIHSS

The scale has different Area of Assessment: Behaviour, Cognition, Function mobility, Language, Negative effect, Quality of life, Social relationship, upper extremity function. Score: Each score has a specific ability between a 0 and 4. For each item, a score is indicative of some level of impairment. The individual scores from each item are summed in order to calculate a patient's total nihss score. The maximum possible score is 42, with the minimum score being a 0.

9. Data analysis and result
Non-parametric tests statistical analysis done. A total of 42 subjects were included in the study. With 35 Ischemic stroke mean age 65.7 ± 5.45 years & 7 Hemorrhagic stroke patient with Mean age 65.47 ± 6.8 yr.

Table 1: Difference between the Mean values of total NIHSS score of Stroke patient

Category	Total Score (MEAN ± SD)
Ischemic	10.3 ± 6.1
Hemorrhagic	23.4 ± 4.6

The above table shows that there is difference in the mean total score between the ischemic and haemorrhagic stroke patient. The mean total score of the ischemic stroke is lesser when compare to haemorrhagic stroke patient. So as by difference Hemorrhagic stroke have more severity of affection than ischemic stroke. According to above table Shapiro walk w test is use where p value–0.000 in ischemic stroke and in Hemorrhagic stroke p value is 0.056. As p value -0.000 less than the data is not normally distributed

Table 2: Difference between Mean & Median Value in Ischemic and Hemorrhagic Stroke 0f First Three Hours on NIHSS SCALE

Category	Mean value	Median value
Ischemic	10.29	9.0
Hemorrhagic	23.43	23.0

Mann Whitney test - Z= 3.89 and P value =0.0001

As above table mean & median value in ischemic and hemorrhagic stroke patient nihs score in first three hours. There is significant difference in both; hemorrhagic stroke had more score than ischemic stroke patient indirectly haemorrhagic patients are more severe than ischemic patients

Table 3: Difference between mean value of ischemic & hemorrhagic stroke of last day of discharge on NIHSS scale

Category	Mean ± sd
ISCHEMIC	2.1 ± 3.0
Hemorrhagic	15.6 ± 3.4

Shapiro wilk W test: P value is 0.000in ischemic and in Hemorrhagic P value is 0.328

As above table show mean value in ischemic and Hemorrhagic stroke patient Nihss score in last day of discharge. There is significant difference in both, Hemorrhagic stroke had more score than ischemic stroke patient indirectly haemorrhagic patient are more severe than ischemic patient.

Table 4: Difference between mean value & median value in ischemic & Hemorrhagic stroke of last day of discharge on NIHSS scale

Category	Mean	Median
Ischemic	2.14	1.0
Hemorrhagic	15.57	15.0

Mann Whitney test –Z=4.12, P=0.001

AS above table mean and median value in ischemic and haemorrhagic stroke patient nihs score in last day of discharge. There is significant difference in both, hemorrhagic stroke had more score than ischemic stroke patient indirectly haemorrhagic patient are more severe than ischemic patient.

10. Discussion
A total of 42 subjects were included in the study. With 35 Ischemic stroke mean age 65.7 ± 5.45 yr & 7 hemorrhagic stroke patient with Mean age 65.47 ± 6.8 yr.

Stroke in patient with hemorrhagic stroke are more severe than strokes in patients with infarct. The relative frequency of hemorrhagic is increasing, with increasing stroke severity being 2 % in very mild stroke & 30 % in the very sever stroke [8].

The outcome of stroke seems to be determined not only by its initial severity but also by the nature of the lesion as well. Hematoma expansion, oedema formation, and interventricular haemorrhage leading to increased intracranial pressure are likely contributors to the acute excess mortality in haemorrhagic stroke patients. Hemorrhagic result in increased intracranial pressure with injury to brain tissue and restriction of distal blood flow [8].

Ischemic stroke are the result of a thrombus, embolism or condition that produced low systemic perfusion pressures. The resulting lack of cerebral blood flow. Thrombi lead to ischemia, or occlusion of an artery with resulting cerebral infarction or tissue death in the respected territory [10]. Thus hemorrhagic stroke had more severity than ischemic stroke patient.

In all ischemic & hemorrhagic strokes on NIHS scale on first three hours & seven day of discharge. The severity of hemorrhagic stroke is more than the ischemic stroke patient [10] in our study total population is 42. 35 in ischemic stroke and 7 in hemorrhagic stroke.

According to component of stroke scale which is use for patient quality of life are [10].

1. a level of consciousness: According to Stroke scale LOC in patient is only 8% of total population having affection and rest 92 % is normal & in hemorrhagic stroke 8% affected of total population and 92% is normal. It is a loosely defined concept that addresses the human awareness of both internal and external stimuli. This can refer to spiritual recognition, psychological understanding, and medical alert states [9].

b. level of consciousness question: According to stroke scale 22% affected of total population in ischemic stroke and rest 78% is normal & in hemorrhagic stroke 12% affected of total population and 88 % is normal so hemorrhagic stroke is more affected. Patient is verbally asked his or her age for the current month [9].

C. level of consciousness command: According to stroke scale 16% is affected of total population and 84% is normal in ischemic stroke & in hemorrhagic stroke 8% affected and 92 % is normal so in this component hemorrhagic stroke is more affected. The patient is instructed to first open & close his or her eyes and then grip and release his or her hand [9].

2. Best gaze: So according to stroke scale 11% affected of total population and normal is 89 % is normal in ischemic stroke patient & in Hemorrhagic stroke 7% affected and 93 % is normal so more Hemorrhagic is affected in this component. A common cause of vision is due to occulomotor nerve. Partial lesion of occulomotor nerve are rare, so a lesion of the nucleus or nerve will result in a unilateral failure of almost all eye movements. Gaze palsy is a term use to indicate a symmetric limitation of the movement of both eyes in the same direction. In contrast, brainstem lesions that produce a horizontal gaze palsy disrupt eye movement toward the side of the lesion. This item is tested because conjugated eye deviation is presented in approximately 20% of stroke cases. CED is more common in right hemispheric strokes and typically in lesions effecting the basal ganglia & temporoparietal cortex [9].

3. Visuals field testing: So in stroke scale 8% affected of total population 92% normal in ischemic stroke patient & in hemorrhagic stroke 3% affected and 97 % is normal so more hemorrhagic stroke is affected in this component. A common cause of loss of peripheral vision is optic nerve damage from glaucoma's an eye examination that can detect dysfunction in central and peripheral vision [9].

4. Facial palsy: As according to stroke scale 17% affected of total population 83% normal & in hemorrhagic stroke 6% affected and 94 % is normal so more severity in hemorrhagic stroke in this component. It is a loss of facial movement due to nerve damage. Facial muscle. May appear to droop or become weak. It can happen on one or both side of the face. Infection or inflammation of the facial nerve. Typically this paralysis is most pronounced in the lower half of one facial side. Affection seen in vertebrobasilar artery, and it involved in corticobulbar and corticospinal tract [11].

5. Motor function arm: So according to our scale in right arm 30% affected of total population and normal is 84% than of left arm 25% affected of total population and normal is 85 % in ischemic stroke patient & in hemorrhagic stroke in right 14% affected normal is 86 % than in left 15% affected and normal is 86 % so more affection in hemorrhagic stroke it is a movement of hand with palm facing downward, have the patient extend one arm 45 degree out in front if patient is lying down as soon as the patient arm is in position the investigator should began verbally counting down from 10.observe to detect any downward arm drift prior to the end of the 10 sec. Repeat this test to opposite arm this item should score for right & left arm individually. Affection is seen in anterior cerebral

artery and is seen in primary motor area, medial aspect of cortex, internal capsule [9].

6. Motor function leg: So accordingly to stroke scale 30% is affected of total population and normal is 70 % in right arm than left arm 25% is normal is 75% ischemic stroke & in hemorrhagic stroke right side 14% affected & 84% is normal than left is 15 % affected 85% is normal so hemorrhagic stroke is more affected. movement of leg with the patient in the supine position, one leg is placed 30 degree above horizontal.as soon as the patient leg is in position the investigator should begin verbally counting down from 5.observe any downward leg drift prior to the end of the 5 second repeat this test to opposite arm [9].

7. Limb ataxia: So according to scale 20% affected of total population is 80% is normal in ischemic stroke & in hemorrhagic 8% affected 92 % is normal. Ataxia is caused by damage to different areas of the central nervous system it affected most part of the brain cerebellar & sensory nerve. This test for the presence of unilateral cerebellar lesion and distinguishes a difference between general weakness and in coordination. The patient should be instructed to first touch his or her finger to examiner finger and back to her nose. Next the patient should be instructed to move his or her heel up &down the shin of his or her opposite leg. This test repeats to other leg also [1].

8. Sensory: So acc. to stroke scale 32% affected out of total population and normal is 68% in stroke patient & in hemorrhagic 11% affected and normal is 89 % so more severity of affection in hemorrhagic stroke. According to that the anterior of forearm, the median & ulnar nerve supply nerve signals to the skin and to the flexor muscles of the hand and fingers. Sensory testing is performing via pinprick in the proximal portion of all four limbs. While applying pricks, the investigator should ask whether or not the patient feels the prick, and if he or she feels the prick differently on one side when compared to the other side. Affection seen in vertebrobasilar artery and it involved in medial lemniscuses (lateral portion) [9].

9. Language: So according to stroke scale 15% affected of total population and normal is 85 % in ischemic stroke & in hemorrhagic stroke 6% affected and normal is 89 % so severity of affection in hemorrhagic stroke. This item measures the patient language skills. However it is important to confirm this measurement at this time. The stroke scale includes a list of simple sentence, a figure of assorted random objects, and a list of word. Then the patient ask to read a list of sentence and name each object despected in next figure [9].

10 Dysarthria: To examine the patient ask to read from the list of word provide with the stroke scale 19 % affected of total population and 81% is normal in ischemic stroke & in hemorrhagic stroke 6% affected and is 94 % is normal so severity of affection is more in haemorrhagic stroke. It cause by damage to the following parts of brain that control muscle movement cerebellum. These can result in dysfunction, or failure of the motor somatosensory cortex of the brain, corticobulbar pathway, the cerebellum, basal nuclei, brainstem or neuro muscular junction. Dysarthria is strictly a motor problem, and is not related to patient ability to comprehend speech. Stroke that affect area such as the anterior opercular, medial prefrontal and premotor, and anterior cingulated region. This brain region vital in coordinating motor control of the tongue, throat, lip, lungs [20].

11. Extinction & inattention: So acc. stroke scale 30% affected of total population and normal is 70 % in ischemic stroke & in hemorrhagic stroke 9% affected and normal is 94 % so severity of affection is hemorrhagic stroke. In this unilateral lesion of various brain structures can cause failure to sense contralesional stimuli in the absence of obvious sensory loose and mostly affected sufficient information to identify neglect may be obtained during the prior testing. If the patient has a severe visual loss preventing visual double simultaneous stimulation. This is performed by having the patient close his or her eye and asking him or her identify the side on which they are being touch by the examiner. During this time the examiner is alternating between touching the patient on right &left side next examiner touches the patient on both side at the same time this should repeat on arm, leg, face [12].

12. Distal motor function: So backstroke scale in right side 17% affected of total population and normal is 83 % and at left 17% area affect and normal is 83 % in ischemic stroke and in hemorrhagic stroke & in hemorrhagic stroke 10% affected of total population and normal is 90 % in right side and 11% is affected and normal is 89 % so more affection of severity is in hemorrhagic stroke in left side. Distal motor function means movements of fingers of hand and leg [9].

11. Conclusion
From the above study, it conclude that, there deterioration in QOL in both ischemic and hemorrhagic stroke patient by using NIHSS scale. With comparison with duration, in hemorrhagic patient has symptom for longer duration than ischemic stroke patient. In comparison with severity, hemorrhagic stroke more severe than ischemic stroke

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