

# Functional Disability and Quality of Life Due to Dementia in Post Stroke Patients

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## ABSTRACT

**Introduction:** Stroke is associated with an excess risk of dementia. The aim of this study to determine Quality of Life and Functional Disability is more affected in which type of post-stroke patients in demented patient or non-demented patients.

**Material and methods:** A total of 30 subjects both male and female were recruited for the study on the basis of inclusion and exclusion criteria after obtaining informed consent. The subjects were divided into two Groups 1 (dementia) and Group 2 (non-dementia) on the basis of scales. And outcome measures on the basis of Stroke-specific quality of life and barthelindex.

**Results:** Result of this study demonstrated a significant difference of quality of life and barthel index between group 1 and 2 and significant correlation between quality of life and barthel index in group 2.

**Conclusion:** This study shown significant difference between group 1 (dementia) and group 2 (non-dementia) Quality of life and functional disability is better in non dementia group and statistically significant correlation between group 2.

**Keywords:** Stroke, dementia, non-dementia, functional disability, quality of life.

## INTRODUCTION

The World Health Organization (WHO) definition of the "stroke" is rapidly developing clinical signs of focal (or global) disturbances of cerebral function, with symptom lasting 24 hours or longer or leading to death, with no apparent cause other than vascular origin.<sup>1</sup>

Stroke is associated with an excess risk of dementia. Epidemiological studies suggest a several-fold increased incidence of various dementias after stroke. About 700000 persons in the US experienced a new or recurrent stroke during 2002. The large number of strokes, taken in combination with the association of stroke and dementia onset, implies that stroke-related dementia is a major public health issue.<sup>2</sup> Stroke is the most common acute neurological illness, the leading cause of disability for adults, and the third cause of mortality in developed countries. Cerebrovascular disease was recognized as an important cause of dementia.<sup>3</sup>

The clinical determinants of dementia included features of the presenting stroke such as its size and location, vascular risk factors such as diabetes mellitus and prior stroke, and host characteristics such as older age.<sup>4</sup>

One year after stroke, the probability of new-onset dementia is 5.4% in patients over 60 years and 10.4% in patients over 90 years.<sup>5</sup> Cerebrovascular disease is considered to be the second most common cause of dementia; 20%-25% of cases of dementia are due to stroke, and another 10%—15% are attributed to a combination of vascular and Alzheimer's disease.<sup>6</sup>

Post Stroke Dementia (PSD), that includes any dementia after stroke, irrespective of its cause, is therefore a clinical syndrome – and not a disease – and it appears to be one of the main causes of dependency in stroke survivors.

Patient-related variables associated with an increased risk of PSD are increasing age, low education level, dependency before stroke, prestroke cognitive decline without dementia, diabetes mellitus, atrial fibrillation, myocardial infarction, epileptic seizures, sepsis, cardiac arrhythmias, congestive heart failure, silent cerebral infarcts, global and medial-temporal-lobe atrophy, and white-matter changes. Stroke-related variables associated with an increased risk of PSD are stroke severity, cause, location, and recurrence. PSD might be the result of vascular lesions, Alzheimer pathology, white-matter changes, or combinations of these.<sup>7</sup> Long-term stroke studies have reported age, depression, cognitive impairment, disability, aphasia and poor social network to be associated with poor HRQOL.<sup>8</sup>

Consensus about the definition of QOL has yet to be reached, but most researchers believe it is multidimensional, comprising 3 broad "domains": physical, mental, and social. Duncan and colleagues in the United States recently found that 8 key areas (strength, hand function, activities of daily living, mobility, communication, memory, emotion, and social participation) emerged as the key areas from the patient's perspective. Similarly, Williams et al<sup>16</sup> reported that patients identified 12 key domains (mobility, energy, upper-extremity function, work/productivity, mood, self-care, social roles,

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**How to cite this article:** Sonali Surbhi, Vivek Chauhan, Sunil Bhatt. Functional disability and quality of life due to dementia in post stroke patients. International Journal of Contemporary Medical Research 2016;3 (1):315-318.

family roles, vision, language, thinking, and personality).<sup>9</sup>

## METHODOLOGY

**Participant:** Patients of stroke were selected on the bases of inclusion and exclusion criteria and were recruited for study. Purpose of the study was explained to the patients. Written consent form was signed by the patients. Selected subjects were divided into two groups by the assessment of dementia and non – dementia in post stroke

**Inclusion criteria:** Patient of stroke atleast three months of stroke, dominant hand should not be affected and able to read and write.

**Exclusion criteria:** Patient of pre diagnosed depression before the attack of stroke, should not be any other neurological disorder and should be less than 80 years.

**Outcome measures:** Stroke specific quality of life scale for measured quality of life and barthel index to measure functional disability.

**Procedure:** The whole procedure was explained to each subject and the subjects signed a consent form before performing the study. Participants were assessed using the Mini Mental State Examination (MMSE). Several previous studies, restricted the cognitive profile to this test; however this alone cannot yield a diagnosis for dementia. Thus we used the Clock Drawing Test, Which both completes and improves the detection rate of dementia. Moreover, the Frontal Assessment Battery, which investigates executive duties were administered.<sup>10</sup> And after that we administered Stroke- Specific Quality Of Life Scale and Barthel Index for assessed quality of life and functional disability.

**Data analysis:** The data was analysed using SPSS software version 17.0 statistical analysis computational package. The arithmetical mean and standard deviation of quality of life and barthel index in group statistics data were evaluated. T-test was used to calculate mean and standard deviation of quality of life and functional disability in dementia group and non dementia group and Pearsons Correlation was used for correlation in both groups. Significant difference between group 1 (dementia) and group 2 (non dementia) of quality of life and barthel index is  $p = .000$  and  $p = .001$  respectively. And a positive significant correlation of quality of life and barthel index in non-dementia group  $p = .012$ .

## RESULT

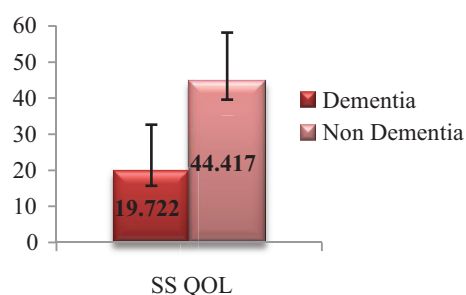
In Group 1 mean of quality of life is 19.722 and SD is 8.47005, and in Group 2 is 44.417 and SD is 9.28790. And in Group 1 mean of barthel index is 46.000 and SD is 36.42559 and in Group 2 is 83.333 and Sdis 19.22751.

In fig.1.1 comparison of Quality of Life between Group 1 and Group 2 show statistically significant difference ( $p=.001$ ). Comparison of Barthel Index between In fig.1.2 between Group 1 and Group 2 statistically significant difference ( $p = .001$ ). In fig. 1.3 correlation of Quality of Life and Barthel Index in Group 2 show statistically siggnificant value ( $p = .012$ ).

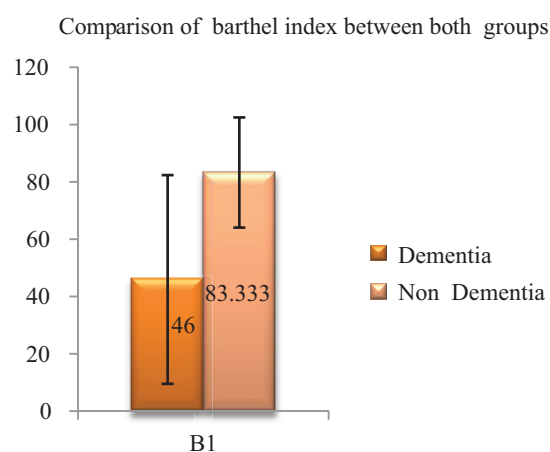
## DISCUSSION

A syndrome of rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin.

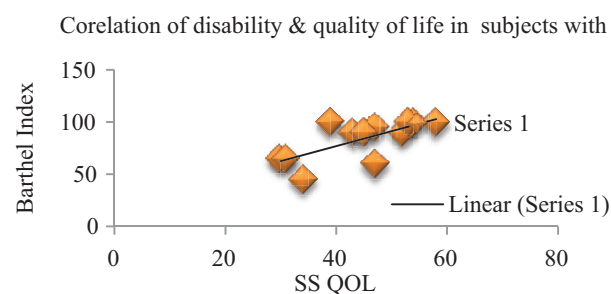
A disability is defined by the WHO as any restriction or lack of ability to perform an activity in a manner or within a range considered normal for human beings and reflects the consequences of impairment in terms of functional performance



**Figure-1:** Between group analysis of QOL scores



**Figure-2:** Between group analysis of BI scores



**Figure-3:** Correlation of Disability and Quality of Life in subjects Without Dementia

and activity by the individual.

In the present study the result depicted that comparison of QOL is higher in group 2. In support of our result Meryl broad et al. (1999) concluded in their study that the dementia affects the QOL.<sup>11</sup>

QOL in terms of satisfaction of basic human needs: physiological, safety and security, social, self esteem and accomplishment. It assessed on the basis of scores obtained for measures of physical, psychological, emotional and social functioning. Activities of daily living are particularly affected, with a much higher proportion of demented patients affected than non demented patients.

Christian et al. described in his study patients dependent upon others to perform activities of daily living clearly had a lower QOL than independent patients.<sup>12</sup> Elias Olukorede Wahab et al. says early onset dementia regardless of the age it starts, even before the age of 65 changes in the brain can be caused by disease / trauma, and can result in loss of cognitive functioning which includes memory, thinking, reasoning, decision making and verbal communication. It sometimes results in behavioral or personality changes, which all impedes on the QOL of an individual, which includes consumer spendings and production measures.<sup>13</sup>

Early onset dementia has a profound effect on the QOL of patients, as its symptoms are serious, the sense of loss for the people, with EOD are enormous which are the Memory problems, especially short term memory loss, poor judgement and language problems, which includes the pronunciation of words, erratic changes in moods, behaviour and personality, disorientation in time, place and the persons, difficulties in recognition, understanding and comprehension, agitation and hallucination.

Functional disability was found in group 1. Hedda Aguerro Torres et al. (1998) concluded that in a very old population in dementia and cognitive impairment make the strongest contribution to both the development of long term functional dependence and decline in function. Dementia is a determinant for developing functional disability and functional decline because of poor judgement, disorientation, difficulty in understanding, less participation in family, society make them less confident. Patients have a fear to making wrong decisions they can't do any work alone. They afraid to going outside of the home, climbing stairs, and other functional activities due poor judgement. These fears and incapability increase the dependency of the patients.

Correlation of quality of life and barthel index within group 1 show statistically non significant value due to small sample size. Inga H. Suenkeler et al. (2015) concluded that there is non significant correlations were found between QOL and admission scores of BI they give the reason the patients were left sided brain lesion, the presence of limb paresis, hypertension, hypercholesterinemia, history of previous brain infarct, atrial fibrillation and presence of other cardiovascular disease. But there is also a great difference between mean value of dementia and non ddementia described in table no.

6 (non dementia group) and table no. 8 (dementia group). Correlation of QOL and BI group 2 was significant. Due to better memory, better capacity of thinking, judgement, ability to ADL independently may be better. Our result of comparison between dementia and non dementia group also shows that the QOL and functional disability is better in non dementia group

#### Future research and Limitation

Future investigation in patients with stroke with diagnosis may give us information about the Dementia and Non Dementiataking large sample size equally divided in two groups.

The male and female subjects should keep in two different groups.

#### CONCLUSION

The conclusion of the study reveals that the subjects shown significant difference between group 1 (dementia) and group 2 (non – dementia). Quality of Life and Functional Disability is better in (non dementia) group 2. And there is statistically non significant correlation within group 1 and statistically significant correlation within group 1 and statistically correlation within group 2.

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**Source of Support:** Nil; **Conflict of Interest:** None

**Submitted:** 07-12-2015; **Published online:** 28-12-2015