

The Investigation and Analysis of Living Ability Level and Its Influencing Factors of Stroke Patients in Community in Zhengzhou, China

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[Abstract] objective exploring community stroke patients' living ability level and its influencing factors analysis. **Methods** Investigating 146 cases of community stroke patients' general condition, depression standard and the living ability by using general material questionnaire, self-rating depression scale and Barthel index rating scale. Analyzing the relationship of the ability of life with gender, working condition, year of sick number, the number of stroke and depression, etc. And further regressively probing into the influencing factors. **Results** The living ability of respondents average score are 74.45 ± 31.21 , 73.3% of the respondents can look after themselves basically in their daily life, 26.7% of the respondents have self-care obstacles. The living ability of patients has relationship with working condition, whether having accepted rehabilitation guidance, merger symptoms, merger heart disease, merger diabetes mellitus ($p < 0.05$). Logistic's regression analysis shows that the influencing factors of stroke patients' daily living ability have depression level, whether having accepted rehabilitation guidance and working condition. **Conclusion** The living ability of community stroke patients is in the medium level, which relate to physical, mental and environment, etc, many factors, especially needing to improve their mental state.

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[Keywords] Community; Stroke; Activity of daily living; Depression

Stroke is the limitations or the whole brain dysfunction that suddenly happen and caused by cerebrovascular diseases^[1]. The incidence of stroke in Chinese urban and rural areas is 200/100000, the annual death rate is 80/100000 ~ 120/100000, more than 70% of the survivors have different levels of functional obstacle, in which 40% are severe disability. The recurrence rate is as high as 40^[2]. These dysfunctions often lose their daily living skills and the ability to work^[3], reduce patients' social activities participation and impact the quality of their life to a large extent. Therefore, through exploring community stroke patients' living ability level and its influencing factors analysis can increase patients' ability to participate in activities clearly and improve the intervention measures of the quality of life, so that can provide guidance and advice for the development of community nursing work.

1 Object and methods

1.1 objects

Employing convenience sampling method, extracted 146 cases stroke patients, from five communities of Zhengzhou during June to September in 2010. All subjects are up to the diagnosis standard that established in the fourth national cerebrovascular disease academic meeting in 1996, and diagnosed as stroke through the brain CT or MRI. Patients who are

conscious, without dementia and mental disease history, no significant intelligence obstacle and aphasia, stable condition, can understand questionnaire survey and willing to cooperate.

1.2 methods

1.2.1 Survey tools

It is cross-sectional investigative study. Assessing patients' general condition, depression standard and the living ability by using general material questionnaire, self-rating depression scale and Barthel index rating scale^[5].

(1) General material questionnaire: including demographic sociology materials (age, sex, cultural degree, marriage), disease related materials (diagnosis type, merger symptoms, merger disease whether there is a family history), etc.

(2) Self-rating depression scale, SDS: including 20 entries. According to the frequency of occurrence to evaluate each entry, dividing the entry into four levels: 1-"no or little time", 2-"a few time", 3-"quite a lot of time", 4-"most part or all the time". Reverse entries to take reverse graded. Depression serious index = each entire accumulative points / 80 (the highest total). The patients that the score index is below 0.5 are not depressed; the patients that the score index is 0.5 or more are depressed.

(3) Barthel scale index: This scale is a instrument that accepted currently and most common used to assess the living ability of stroke patients, which including ten item content that are shit、urine、dress and making up、going to stool、taking food、shift、walking、walking up and down the stair and bath. According to whether the patients need help or not, the degree of help and the length of time spending of each item, it give each item 15、10、5 or 0 point. The total score are 100 points, the higher the score, the better the self-care independence. According to the score, it divided the living ability into 2 levels. One level that the score are below 60 points the patients are deemed to can look after themselves basically in their daily life, the other that the score are 60 points or more the patients are deemed to have self-care obstacles.

1.2.2 Data collection methods

The investigation team collected questionnaires through the face to face interview type that entering family and visiting. Team members include the undergraduate and graduate students. Only have been unified selection、training、examination, can the investigators participate in study. The study extended 160 questionnaires, retrieved 146 valid questionnaires. The effective recovery rate is 91.2%.

1.2.3 Statistical Methods

By using double people double input method to entry the original data, using SPSS17.0 software to statistic and analysis, using logical check after entry. Using mean、standard deviation、rate, etc, to statistical describe. Using χ^2 inspection、single factor analysis and regression analysis, etc, to do statistical inference.

2 Results

2.1 General Data

The respondents include 93 male patients and 53 female patients. The average age of the respondents are 36 ~ 87 years (67.95 ± 11.08 years). Cultural degree: primary school and the following have 35 cases, junior high school has 49 cases, senior high school or technical secondary school have 44 cases, junior college and above have 18 cases. In which include 119 cases of ischemic stroke, 17 cases of hemorrhagic stroke and 10 cases of mixed stroke. 85 cases of stroke attacked once, 37 cases of twice, 24 cases of three times and more. 53 cases of left hemiplegic, 93 cases of no hemiplegic. 67 cases of merged one kind of disease, 59 cases of merged two or more kinds of diseases. The order of the merged related diseases is high blood pressure (104 cases)、heart disease (48 cases)、diabetes(42 cases), etc.

2.2 The level of living ability of stroke patients

This respondents' averaged Barthel index is 74.45 \pm 31.21 points (0 to 100 points), in which including 107 cases of self-caring basically in their daily life that account for 73.3%; 39 cases of self-caring disabilities that account for 26.7%.

2.3 The analysis of the related factors that influencing the living ability level of stroke patients

2.3.1 The relationship between the living ability level of stroke patients and the general data

Take the patients' gender、culture degree、marital status、duration of illness、the number of stroke、whether merging high blood pressure or not, etc, and living ability to do a chi-square test respectively. The results as described in the table of 1.

2.3.2 The relation between the living ability level of stroke patients and depression

In the study, there are 65 cases of depression patients; the incidence of depression is 44.5%. The score of daily living ability of depression group are 63.62 \pm 35.56 points; the score of no depression group are 83.15 \pm 28.58 points. Take whether having depression or not with the living ability of patients do a chi-square test. The results as described in table 2.

2.3.3 The analysis of the influencing factors of the living ability level

According to the above analytical results ,taking educational level, work status, whether having accepted rehabilitation guidance or not, merge symptoms, whether merging heart disease or not, whether merging diabetes or not and depression as argument, taking living ability as dependent variable. Using Backward method to do Logistic regression, only whether having accepted rehabilitation guidance or not, work status, whether depression or not, brought into the equation. The results as described in table 3.

3 Discussions

3.1 The living ability level of community stroke patients

The rate of disability and fatality of Stroke is very high, and most of the patients left different degree of limbs dysfunction. The studies show that the rate of post-stroke disability as high as 70%, the rate of severe disabilities reach 40%, which seriously influenced the ability of daily living of patients and the ability of social participation. The results of the study show that the stroke patients that can self-care account for 73.3%, although lower than the self-care rate of the aged group (80.6%)^[6], which still shows that the majority of the communities stroke patients can self-care. This may relate to the respondents of the study return to the community in stable condition;

may also relate to the majority of respondents (58.9%) had accepted rehabilitation guidance.

Table 1. The comparison of living ability level in different gender, culture level, whether there is spouse or not, etc. (n=146)

item		Self-care	Self-care	χ^2	P
		basically group	obstacle group		
		cases (%)	cases (%)		
Gender	male	67(72.0)	26(28.0)	0.203	0.653
	female	40(75.5)	13(24.5)		
Culture degree	Primary school and the following	29(82.9)	6(17.1)	3.865	0.046*
	junior high school	37(75.5)	12(24.5)		
	senior high school or technical secondary school	28(66.7)	16(36.7)		
	junior college and above	13(72.2)	5(27.8)		
with or without a spouse	with	90(70.9)	37(29.1)	2.923	0.087
	without	17(89.5)	2(10.5)		
Work condition	continue working	28(90.3)	3(9.7)	5.834	0.016*
	workless	79(68.7)	36(31.3)		
Duration of illness	<1 year	33(71.7)	13(28.3)	1.174	0.556
	1-5 years	43(78.2)	12(21.8)		
	>5 years	31(68.9)	14(31.1)		
The number of stroke	once	67(78.8)	18(21.2)	3.744	0.154
	twice	23(62.2)	14(37.8)		
	Three times and more	17(70.8)	7(29.2)		
Merged symptom	no	27(93.1)	2(6.9)	16.511	0.001**
	One kind	55(78.6)	15(21.4)		
	Two kinds or more	25(53.2)	22(46.8)		
Whether having accepted rehabilitation guidance or not	Yes	72(83.7)	14(16.3)	11.636	0.001**
	No	35(58.3)	25(41.7)		
Have high blood pressure	Yes	79(76.0)	25(24.0)	1.320	0.251
	No	28(66.7)	14(33.3)		
Have hart disease	yes	28(58.3)	20(41.7)	5.135	0.023*
	No	75(76.5)	23(23.5)		
Have diabetes	Yes	22(52.4)	20(47.6)	5.225	0.022*
	No	75(72.1)	29(27.9)		

Note: * represent $P < 0.05$, ** represent $P < 0.01$

Table 2. The comparison of daily living ability between depression group and between non-depressive group (n=146)

Project		self-care basically	Self-care disorder	χ^2	P
		group	group		
		Number of cases(%)	Number of cases(%)		
Depression	There are	40(61.5)	25(38.5)	8.261	0.004**
	No	67(82.7)	14(17.3)		

Note: * represents $p < 0.05$, ** represents $p < 0.01$

Table 3 The Logistic regression **analysis** of the related influencing factors of the ability of daily living of stroke patients.

	B	Exp(B)	S.E	Wals	P	Nagelkerke R	Goodness of fit
The constant term	7.219	1364.702	1.708	17.867	0.001		
Whether having accepted rehabilitation guidance or not	-1.288	0.276	0.421	9.372	0.002		
Work State	-1.562	0.210	0.680	5.272	0.022		
Depression	-1.081	0.339	0.423	6.523	0.011		
Model evaluation						0.254	73.3%

3.2 The related factors analysis of the living ability level of stroke patients

3.2.1 General demographic data

Studies find that the living ability of the stroke patients that still working is significantly higher than those (including the retired and unemployed) that no work. This may relate to the illness is light of the stroke patients who still working and continuing to work contributes to rehabilitation. Although the stroke patients that no working have more time and effort to participate in exercise, the results of the survey is not ideal, which suggests that we should play the initiative of the community workers and their families members. Creating a certain activity atmosphere to compel stroke patients to participate in exercises in daily lives, and promote them recovery.

In addition, the study shows that gender, educational level have no effects on the ability activity level, which consists with the results of Zhang Hui's, etc, studies [7-8]. The study also finds that whether having spouse or not has no effects on the ability activity level, which disaccords with many researchers' results. Spouse as the caregivers, play an important role of accompanying、guidance and supervision in the recovery procedure of stroke patients. However, in the study, the living ability of the stroke patients who have spouse is lower than those that have no spouse. After the simple interview that with the patients and families members, we found that the patients who have spouse are more easy to idle, most stroke patients reflect that " Don't participate in any activities at home, can't do any things , so don't need to do"; but spouse reflect that "Don't let he do, he do rough-and-tumble which hard to arrange,As I have done for him"; Children reflect that "It is so good that my dad(mamy) being cared of, he(he)will increasingly lazy, don't do any exercise, also don't need to do". Which all show that the traditional concept of care may cause excessive care, excessive reliance on, and thus increases the inertia of stroke patients, which lead to the declining of

enthusiasm for training activities, the reducing of the living ability level; In addition, which may also relate to the size of the sample who don't have spouse is too small.

3.2.2 Disease-related factors

The study shows that the more combined symptoms, the lower ability of living and activities of the patients. Merging symptoms after stroke, on the one hand, will delay the effect of rehabilitation or impede the process of rehabilitation; on the other hand, the more merging symptoms, the more psychological burden of patients, which will produce such as anxiety, depression and other psychological problems. Single factor anglicizing in the study shows that the level of the activity ability of the patients that merged with heart disease, diabetes is lowerer than those that don't. But these factors are not brought into Logistic regression equation in the multivariate **analysis**. This conclusion supports the relation between chronic disease and the living ability level of stroke patients, but couldn't fully support the viewpoint of Lin Hong, etc^[6], proposed that chronic disease will reduce the activity ability of the old people. Merging heart disease can cause the restriction of the scope and strength of patients' activities, which makes the patients are afraid of participating in activities. And the patients that merging diabetes are easy to appear fatigue、polydipsia、polyuria and other phenomenon. In the process of the investigation, a significant number of patients reflect that the frequently going to toilet limits their ability to participate in activities. Therefore, the mechanism of the relationship between merging disease and patients' activities ability deserve to further in-depth discussion.

In addition, the results of the study show that the duration of illness, the number of stroke have nothing to do with the level of the activity ability of stroke patients. Which disaccords with the result of LiuShufang's, etc, studies ^[10], which may relate to

the composite life of illness is long and the condition of the respondents is stable in the study.

3.2.3 Rehabilitation guidance is good to improve the ability of life of stroke patients

This study shows that the ability of self-care of the patients that accept rehabilitation instruction is significantly higher than those who don't accept the rehabilitation intervention. The earlier the intervening of rehabilitation training, the better the recovery of function and the overall effects of the patients^[11]. The Foreign researcher Green^[12] pointed out that stroke patients that received timely rehabilitation training can promote functional remodeling of the central nervous system, and further promote the recovery of limbs' function. If the patients entered into and completed rehabilitation procedure, about 80% of them can exercise or complete exercise independently, 65% ~ 70% of them can do their daily activities by themselves. Thus, it is extremely important of receiving rehabilitation guidance. The study results also show that early rehabilitation training can significantly improve the living ability of stroke patients.

3.2.4 Post-stroke depression can lead to the declining of living ability level

In recent years, domestic and foreign scholars generally realized that the existence of variety mental disorders of stroke patients, especially post-stroke depression. The incidence of depression in the study is 44.5%, which approximates 40~50% that covered by the literature^[13]. The results of the study find that: the living ability level of the stroke patients that have depression is lower theirs that no depression; Taking activity as the dependent variable to do Logistic regression analysis shows that depression is a major influencing factor of the drop of stroke patients' activity level. Foreign Barbara M's, etc,^[14] followed studies find that stroke depression score independently has a negative correlation with the damaged degree of ADL, if mood improved, the recovery of ADL will improve obviously. Domestic LiuYongzhen, ect,^[15] following the depression group 7years find that the Barthel index score of depression group is significantly lower than non-depressed group, which further confirms that depression has a long-time negative influence on the living ability of stroke patients. However WuQingwen, etc,^[16] think that is independent of the ability of stroke patients with depression, depression has nothing with the ability of self-care, which may relate to the different of research tools.

Depression after stroke will weaken the effect of rehabilitation exercise in patients and affect activities of daily living in patients with the involvement and

participation, at the same time on the physiological mechanism of occurrence of depression delay the recovery of neural function of patients with, thereby affecting recovery and improve activities of daily living in patients with.

4 Brief summaries

Post-stroke will cause the declining of activity level of patients, the rate of disability is as high as 70% , which is the corporate result of physical, psychological and social factors and relate to whether the patients have received rehabilitation guidance or not, working state, whether depression or not, merging symptoms, merging heart disease and diabetes mellitus.

Therefor the influencing factors of the rehabilitation of stroke patients are various. Most of the consequences of stroke are nerve damaged than die. As the medical personnel, it is important to the recovery of patients' ability of daily life that knowing the prevention 、 education and guidance of stroke.

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