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Assessing General Health Among Stroke Patients Through a Comparative Methodology

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The aim of present study was to compare general health status and its domains like mood domain between stroke patients and other causes of hospitalization. In a hospital based case-control study a total of 150 stroke cases along with 150 controls were enrolled. Study participants were selected from those patients hospitalized in Alavi, Bouali and Fatemi university hospitals located in Ardabil, north-west of Iran. Participants were interviewed and a questionnaire containing demographic information, known stroke risk factors and GHQ 28 questions was filled out for them. Data were analyzed by SPSS version 13 statistical package. Demographic characteristics in case and control groups were not statistically different. Mean total GHQ score was 13.02 ± 4.8 (Mean \pm SD). It was 13.85 in case group and 12.36 in control group. However those having a high GHQ score hadn't different distribution between two groups. It maybe concluded that although stroke affects general health status and increases chance of depression but this may not be more than the effect of some other diseases or hospitalization itself.

Key words: Stroke, cerebro-vascular accident, GHQ 28, depression, Iran

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INTRODUCTION

A stroke can cause major disruptions to one’s life, including changes in health status, occupation, social role and independence (Whyte and Mulsant, 2002). It has been shown in different studies that stroke survivors have an impaired quality of life in the long-term basis and patients often experience a loss of self-identity following a stroke (Secrest and Thomas, 1999).

Some form of depression is considered to occur in at least one-quarter of patients in the first year after acute stroke (Burvill *et al.*, 1995a; House, 1987; Johnson, 1991), with the period of greatest risk being the first few months after onset (Burvill *et al.*, 1995b; Herrmann *et al.*, 1998, House *et al.*, 1991). It has also been reported to develop in one-third of the population 3-5 years after a stroke and has even been reported to continue for up to 14 years after stroke (Andersen *et al.*, 1994; Tuomilehto *et al.*, 1995; Wilkinson *et al.*, 1997). However, such estimates vary considerably across studies because of differences in definitions, study populations and the timing of assessments, as well as complexities in the recognition, assessment and diagnosis of abnormal mood in the setting of stroke-related disability (Haikett *et al.*, 2005; House, 1987; Johnson 1991; House *et al.*, 1989).

Depression in stroke survivors can be a barrier to rehabilitation and it has been found to have an independent negative effect on the long-term recovery of physical and cognitive functions (Morris, 1992).

Although many studies have found higher rates of depression among stroke patients and some prospective studies have also found it to act as a risk factor fore stroke, but little research is done comparing its effect with other causes of hospitalization. The aim of the present study was to compare general health status and its domains like mood domain between stroke patients and other causes of hospitalization.

MATERIALS AND METHODS

This was part of a hospital based case-control study aimed at comparing the general health status between patients having a recent stroke and a group of eligible controls. A total of 150 cases along with 150 controls were studied. Study participants were selected from those patients hospitalized in Alavi, Bouali and Fatemi University Hospitals located in Ardabil, north-west of Iran. Cases were selected from neurology specialty ward of Alavi university hospital which is the provincial referral neurology center. Controls were chosen from other provincial referral wards located in any of the above mentioned university hospitals. This selection strategy

was taken to make sure that the reference community becomes similar both for cases and controls. Cases were those with a definite diagnosis of stroke and controls were patients hospitalized without a known cerebrovascular, TIA and hypercoagulopathic disease history. Computerized tomographic scanning of the brain was accomplished for all cases having stroke to make out a differential diagnosis. Controls were matched with cases for sex and also for age in a three years acceptable age difference range. Participants were interviewed and a questionnaire containing both demographic information, known stroke risk factors and GHQ 28 questions was filled out for each person either in case or control group. Data were entered into a computer and were analyzed by SPSS version 13 statistical package. Chi-square test was used for comparing the proportions between groups and t test was used to compare means. Odds ratio and its 95% confidence interval was calculated using Epi Info 2002 statistical software everywhere primary tests showed a significant distribution difference. A p-value less than 0.05 was considered as statistical significance level. The study was approved by high degree committee of research and ethics. Verbal consent was taken from all participants letting them know that there is no obligation in participating.

RESULTS

Demographic characteristics in case and control groups were not statistically different and the comparative data are given in Table 1.

Although an acceptable total GHQ 28 Farsi questionnaire reliability was measured but in social function and somatization domains we found a lower reliability.

Mean total GHQ score was 13.02±4.8 (Mean±SD). It was 13.85 in case group and 12.36 in control group and the difference was statistically significant (p<0.01). However those having a high GHQ score hadn’t different

Table 1: Demographic characteristics compared between case and control groups

Demographic characteristics	Cases		Controls		
	Frequency	Percent	Frequency	Percent	
Age group	30-50 years	21	14.0	24	16.1
	50-70 years	84	56.0	80	53.7
	≥ 70 years	45	30.0	45	30.2
Sex	Male	72	48.0	72	48.0
	Female	78	52.0	78	52.0
Urbanity	Urban	101	68.7	97	65.5
	Rural	46	31.2	51	34.4
Marital status	Married	114	78.0	117	78.0
	Single	32	21.9	33	22.0
Income and living charges	Independent	91	61.4	97	65.5
	Dependant	57	38.5	51	34.4

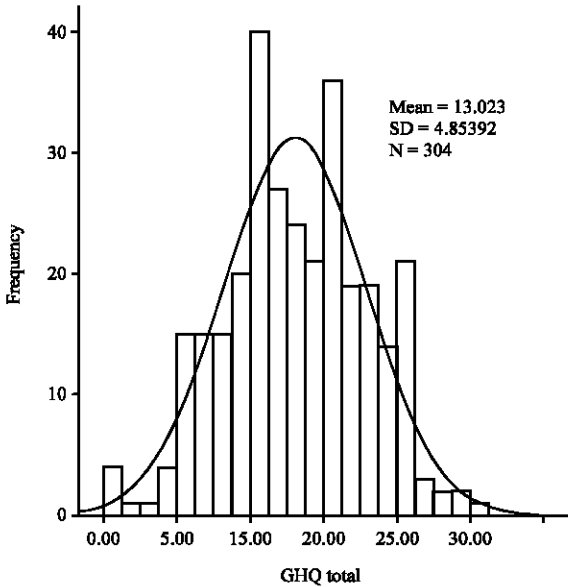


Fig.1: Frequency distribution of total GHQ scores

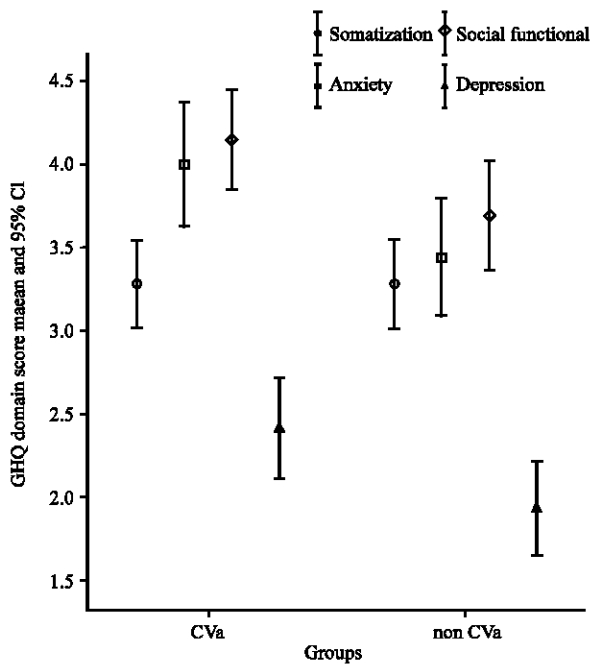


Fig. 2: Mean score and confidence intervals among GHQ domains compared between stroke and non stroke patients

distribution between two groups. Figure 1 shows the frequency distribution of total GHQ scores and Fig. 2 compares the mean and confidence intervals among GHQ domains.

Anxiety, Social function and depression scores were higher in stroke patients compared to control group using

t-test ($p < 0.05$). Although the mean score in any of the Anxiety, Social function and depression domains were higher among stroke patients but in none of these domains the percentage of patients with abnormal score was not statistically higher among stroke patients compared to control group.

Out of our objectives detected risk factors for CVA in this study were found to be smoking (OR = 16.2 and 95% CI: 3.65 < OR < 100) and hypertension (OR = 3.48 and 95% CI: 2.09 < OR < 5.08).

DISCUSSION

Mean total GHQ score in our study was 13.02. This score was as low as 5.7 in a large study by Willmott *et al.* (2004). This lower GHQ mean score may be due to different study populations who were hospitalized patients in our study contrary to general population studied by Sasi. Similarly the GHQ 30 mean score in a study by May *et al.* (2002) was 3.1 in a large cohort in South Wales.

As it can be found in Fig. 1, we found a near normal GHQ score distribution while Willmott *et al.* (2004) had found the total GHQ score distribution to be skewed and had concluded that GHQ score median is more reliable than its mean.

A systematic review by Hackett showed a pooled estimate of post stroke depression equal to 33% (95% confidence interval, 29 to 36%). Differences in case mix and method of mood assessment could explain some of the variation in estimates across studies (Hackett *et al.*, 2005).

Given the importance of mood, which along with cognition, motivation and social support is a key factor influencing recovery from stroke, it is surprising that there is much misconception over the epidemiology of stroke-associated depression, although the generally poor quality of studies has obviously contributed to this situation (Hackett *et al.*, 2005).

Although in this study the mean score in any of the Anxiety, Social function and depression domains as well as total GHQ score were higher among stroke patients but in none of these domains even the depression domain the percentage of patients with abnormal score was not statistically higher among stroke patients compared to control group.

This means that if findings of our study are confirmed by other larger scale studies, It can be concluded that although stroke affects general health status and increases chance of depression but it may not be more than the effect of some other diseases or hospitalization itself.

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