ORIGINAL ARTICLE

Frequency of Complications in Hospitalized Stroke Patients

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ABSTRACT

Objective: To determine the frequency and type of medical complications following stroke in hospitalized patients using pre specified definition of complications.
Study design: observational study.
Place and duration of study: We recruited 100 consecutive stroke patients admitted in Sir Ganga Ram Hospital, Lahore from April 2009 – September 2009.
Subject and method: A total of 100 stroke patient fulfilling the inclusion criterion were enrolled in the study. After the clinical assessment and CT scan brain, these patient were observed for symptomatic post stroke complication on daily basis until discharge from hospital or death and on readmission within six months.
Results: Complications during hospital admission were recoded in 87(87%) patients. Specified complications were as follows. Recurrent stroke (9%) epileptic seizure (9%) urinary tract infections (26%) chest infections (28%) pressure sores (40%) shoulder pain (40%) Depression (21%) Falls (5%) thromboembolism (5%). Deaths during hospital stay occurred in 12(12%) patients including those with severe disease and complications with severe neurological disease (8%) and complications (4%).
Conclusion: Our study confirmed the post stroke complications particularly infections, pain and pressure sores. We also identified psychological problems related with stroke. Early recognition and treatment of these potentially preventable complications can minimize the disability and mortality.
Key words: Stroke, complications, hospitalized

INTRODUCTION

Stroke is major cause of mortality and morbidity with disability and social dependence through out the world. Patient with acute stroke are at risk of developing many complications secondary to their stroke. These complications are important because they may cause death and delay successful rehabilitation. The frequency of medical complication must be recognized early as many of them are potentially reversible.

Incidence of stroke and its risk factors like diabetes mellitus, hypertension, dyslipidemia are at rise in Pakistan[1]. Burden of stroke reaching approximately 3.5 million every year[2]. Stroke related deaths and disability is reaching in epidemic proportions[3] fifty percentage of deaths after stroke are attributed to medical complication[4].

The objective of the study was to determine frequency and type of medical complications following stroke in hospitalized patients using prespecified definition of complications proposed by Lang horne et al[5].

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PATIENTS AND METHODS

We included those patients who were hospitalized with acute stroke presenting with in 5 days of onset of diseases. Diagnosis of stroke was based on clinical features supported by brain computed tomography.

Patients with brain tumors, hypertensive and metabolic encephalopathy meningitis and encephalitis that can cause neurological deficit were excluded. Patients with subarachnoid hemorrhage and subdural hematomas were also excluded.

The patients fulfilling the inclusion criteria were admitted in medical wards of Sir Ganga Ram Hospital during April-September 2009. Initial assessment including demographic details, degree of neuro deficit and functional status was made on the basis of history and physical examination. Special emphasis was given on symptomatic complications including recurrent stroke, epileptiform seizures, infections like chest and urinary tract infection, pressure sores, mobility related injuries and thromboembolic complications.

Daily assessment of all patients was done for occurrence of complications till discharge from hospital or death of the patient. Baseline and relevant investigations were reviewed for confirmation of complications. Relevant data was recorded on a designed performa. Data was statistically analyzed by using SPSS Window; Version 8.

RESULTS

A total of 100consective stroke patients were admitted in Sir Ganga Ram Hospital Lahore. The median delay between symptoms onset and recruitment in to the study was 2 days (interquartile range 1 to 5 days) with a median follow up of 10 days. The 100 patients had average of 70 years (interquartile range 50 to 85 years) fiftytwo (52%) were female and 48 (48%) were male. All patients under went CT scan brain of these 79 (79%) showed infraction 13(13%) showed intracerebral hemorrhage. No visible lesion was seen in 8 (8%).

A total of 12(12%) died in the hospital during follow up of 10 days. Of these 4 patients had massive intracerebral hemorrhage 4 had aspiration pneumonia and 4 patients died of multi lobar infarction. The observed frequencies of symptomatic complication in stroke patients are described in table.

Tale: Frequency of complications in hospitalized stroke patient

1. Neurological Complications	**Frequency**
a. Epileptic seizures	(9%)
b. Recurrent stroke	9(9%)
II. Infections	
a. Urinary tract infections	26(26%)
b. Chest infection	28(28%)
III. Mobility related	
a. Pressure Sores	40(40%)
b. Falls	5(5%)
IV. Pain	
a. Shoulder Pain	42(42%)
V. Psychological	
a. Depression	21(21%)
VI. Thromboembolism	
a. Deep vein Thrombosis	2(2%)
b. Pulmonary Embolism	3(3%)

Results are expressed as the proportion of patients noted to have a complication on at least one occasion.

DISCUSSION

Our study determined the frequency and type of post stroke complication from the time of admission. At least one complication was found in 87% which is comparable to other randomized trials[5,6]. Study analysis showed relatively high frequency of urinary tract and chest infection which are found in variable proportions in various studies[7,8,9]. Infections contribute to severity of post stroke disability and increased mortality[10]. Mortality is related with old age, dysphasia and poor immune response[11]. However incidence of infection can be reduced by specialized stroke care units[12].

Pain in general and shoulder pain in particular was observed in 42% of patients. Inder Davik & colleagues noted unspecified shoulder pain in 32% patients[13]. Thromboembolism and falls were infrequently noticed in the patients during hospital stay. These complications occur usually late in the course of disease and out patient were not observed for that period.

Most of the studies on post stroke complications have focused on individual problems in isolation such as seizures, venous thromboembolism, falls or depression. These studies have used different designs, method of patients selection and diagnostic criteria. Time and duration of follow up also varies considerably. Thus it is not surprising that reported frequencies of specific complications also differs in these studies[14,15]. Limitations of our study include the focus on symptomatic complications, simple nature of some definition of complications and cases at one hospital site. We used simple clinical because we believed that this would be most practical and accurate representation of the clinical symptoms experienced by stroke patients.

Knowledge of these complications is important in term of direct patients care and planning of future services. Further studies are needed in different hospitals to address the recognition, prevention and treatment of potentially preventable complications.

Establishment of stroke care units with trained personals will provide the best possible services to reduce the disability and economic burden of the disease.

CONCLUSION

Patients with acute stroke are likely to develop neurological and medical complications, which can cause death or delay rehabilitation. Early recognition and treatment of the complications can reduce the duration of hospital stay and improves functional outcome leading to successful integration of individuals of the society.

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