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An observation into the incidence of in-hospital complications of ischemic stroke patients

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ABSTRACT

The present study was undertaken to assess the complications after ischemic stroke, to find the most common types, severity and frequency of complications associated with ischemic stroke, to compare the incidence of direct and indirect complications of stroke and to find the association of complications of stroke with demographic and clinical variables. We conclude that there is significant association between complications and socio-demographic and clinical variables.
Keywords: Complications after ischemic stroke

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INTRODUCTION

World Health Organisation defined stroke as "rapidly developing clinical signs of focal or global disturbance of cerebral function, lasting more than24 hours or leading to death, with no apparent cause other than vascular origin". Stroke is second to heart disease as a worldwide cause of death. In the United States, stroke is the third most common cause of death, following heart disease and cancer [1]. Though the mortality for stroke has been on the decline still it represents the most common cause of chronic disability posing a major social and financial challenge to the community [2]. The present study was undertaken to assess the complications after ischemic stroke, to find the most common types, severity and frequency of complications associated with ischemic stroke, to compare the incidence of direct and indirect complications of stroke and to find the association of complications of stroke with demographic and clinical variables.

MATERIALS AND METHODS

The present study has been approved by institute ethics committee for human studies. A total of 50 patients admitted in Stroke ICU, Little Flower Hospital, Angamaly, were included in the study, after explaining the study to the participants, written informed assent from the participants was obtained.

Inclusion criteria

1. Patients with ischemic stroke.

Exclusion criteria

1. Patients with Transient Ischemic Attack (TIA) and intra cerebral haemorrhage.
2. Patients discharged prematurely at request.

Development and description of the tool

Tool 1
Socio-demographic proforma include age, sex of patients admitted in Stroke ICU, Little Flower hospital, Angamaly.
Tool 2
The National Institute of Health Stroke Score (NIHSS) is a 42 point clinical Examination system that has become the standard clinical severity scale in most clinical trials.[3]
Tool 3
The Glasgow Coma Scale (GCS) is a 15 point clinical examination system that has become the standard neurological scale in most clinical trials.
Tool 4
 Investigation reports such as lab investigation reports and CT/ MRI reports for the assessment of complications of ischemic stroke are recorded from medical records of patients.

Technique

➢ Schedule - for recording all reports available for the study.
➢ Neurological scales - for neurological examination
➢ Reports from medical records- for recording of investigations of each patient.

Data analysis

The collected data was coded and processed by using the statistical packages for social sciencessoftware 20.0. Descriptive analysis using standard statistical methods was performed. The tests used are frequencies, percentage and chisquare test.

RESULTS

Table 1: Frequency distribution and percentage of ischemic stroke patients based on their age and sex. (n=50)

Socio-demographic characteristics	Frequency	Percentage
Age	**5**	**10**
30-50 (young adults)	**16**	**32**
51-70 (middle adults	**29**	**58**
71-90 (older adults)		
Sex		
Male	**29**	**58**
Female	**21**	**42**

Table 2: Frequency distribution and percentages of ischemic stroke patients based on their type of stroke and hemisphere affected. (n=50)

Clinical variables	Frequency	Percentage
Type of stroke		
Thrombotic	46	92
Embolic	4	8
Hemisphere affected		
Left	30	60
Right	17	34
Others	3	6

Table 3: Frequency distribution and percentage of direct complications among ischemic stroke patients admitted in stroke ICU. (n=50)

Direct complications	Frequency	Percentage
Infarct extension	4	8
Recurrent infarction	9	18
Cerebral edema	5	10
Seizure	5	10

Table 4: Frequency distribution and percentage of collateral complications among ischemic stroke patients admitted in stroke ICU. (n=50)

Complications	Frequency	Percentage
Fever	17	34
Pneumonia	6	12
UTI	6	12
Bedsore	4	8
Hyponatremia	15	30
Hypokalemia	7	14
Hypoxia	6	12
ARDS	2	4
Renal dysfunction	7	14
MI	3	6
Cardiac arrhythmia	6	12

Table 5: Frequency distribution and percentage of other complications among ischemic stroke patients admitted in stroke ICU. (n=50)

Other complications	Frequency	Percentage
Complications due to treatment	8	16
Psychological complications	39	78
Sleep disturbance	28	56
Bowel disturbance	41	82
Urinary problems	10	20

Table 6: Frequency distribution and percentage of incidence of direct and indirect complications among ischemic stroke patients admitted in stroke ICU.(n=50)

Complications	Frequency	percentage
Direct complications	14	28
Indirect complications	18	36
direct and indirect complication	5	10

Figure 1: Percentage of incidence of complications among patients admitted in stroke ICU.
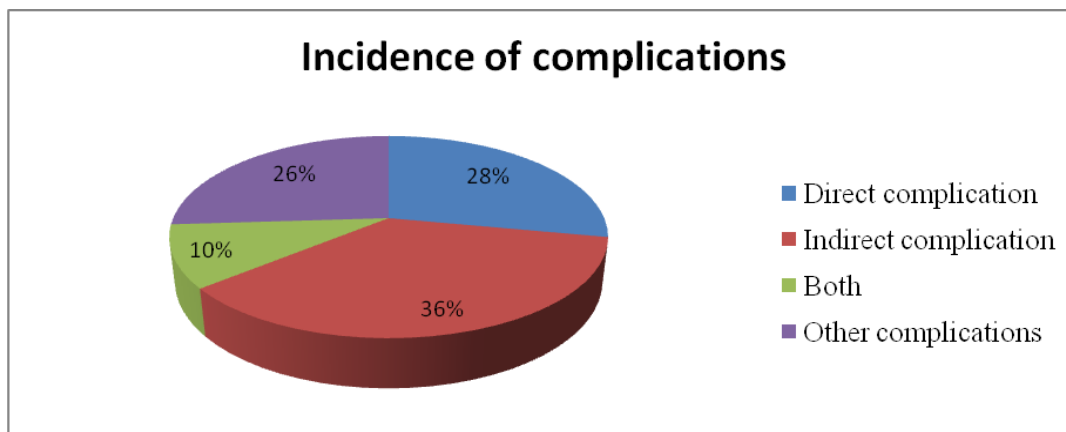

Table 7: Frequency distribution and percentage of severity of stroke among ischemic stroke patients admitted in stroke ICU.(n=50)

GCS Scale	Frequency	Percentage
Fully awake	24	48
Minor head injury	7	14
Moderate head injury	10	20
Severe head injury	8	16
Coma	1	2
NIHSS scale		
Minor stroke	20	40
Moderate stroke	24	48
Sever stroke	6	12

Table 8: Association of sex with hyponatremia among ischemic stroke patients (n=50)

Sex	Hyponatremia		χ^2
	Present	Absent	5.35*
Male	5	24	
Female	10	11	

*P value(p<0.05) significant

Table 9: Association of type of stroke with pneumonia among ischemic stroke patients. (n=50)

Type of stroke	Pneumonia		χ^2
	Present	Absent	5.95*
Thrombotic	4	42	
Embolic	2	2	

*P value(p<0.05) significant

Table 10: Association of type of stroke with hyponatremia among ischemic stroke patients. (n=50)

Type of stroke	Hyponatremia		χ^2
	Present	Absent	4.19*
Thrombotic	12	34	
Embolic	3	1	

*P value (p<0.05) significant

Table 11: Association of type of stroke with hypoxia among ischemic stroke patients.(n=50)

Type of stroke	Hypoxia		χ^2
	Present	Absent	5.95*
Thrombotic	4	42	
Embolic	2	2	

*P value (p<0.05) significant

Table 12: Association of type of stroke with renal dysfunction among ischemic stroke patients. (n=50)

Type of stroke	Renal dysfunction		χ^2
	Present	Absent	4.68*
Thrombotic	5	41	
Embolic	2	2	

*P value (p<0.05) significant

Table 13: Association of type of stroke with arrhythmias among ischemic stroke patients. (n=50)

Type of stroke	arrhythmias		χ^2
	Present	Absent	5.95*
Thrombotic	4	42	
Embolic	2	2	

*P value (p<0.05) significant

Table 14: Association of type of stroke with psychological problems among ischemic stroke patients. (n=50)

Type of stroke	Psychological problems		χ^2
	Present	Absent	7.12**
Thrombotic	38	8	
Embolic	1	3	

**-p value (p<0.01) significant

DISCUSSION

According to different stroke studies acute ischemic stroke refers to stroke caused by thrombosis or embolism and is more common than hemorrhagic stroke. Ischemic strokes are by far the more common type, causing nearly 90% of all strokes [4]. Approximately 50 percent of deaths after stroke are attributed to medical complications. Prospectively collected data suggest that direct effects of ischemic stroke account for the majority of deaths within the first week after stroke, but medical complications predominately account for the mortality thereafter [5]. Majorities (58%) of the patients were older adult and 32% were middle adults.In the present study we have observed that majority of patients (92%) had thrombotic stroke and rest (8%) had embolic stroke. In complications of stroke, indirect complications were most prominently seen among patients that about 36% than direct complications (28%). 10 % of patients had both direct and indirect complications, whereas other complications were seen among 26% of patients. 6% of mortality rate were seen among admitted patient. There is significant association between complications and socio-demographic and clinical variables.

CONCLUSION

We conclude that there is significant association between complications and socio-demographic and clinical variables.

Limitations

The study is limited to patients admitted in stroke ICU of Little Flower Hospital, Angamaly so generalization is limited. The small sample size constrains the significance of the results. The longer follow up might give better perceptive on functioning and disability after ischemic stroke.

Conflicts of interest: Nil

REFERENCES

[1]   Harold P Adams, John W Norris. Ischemic cerebro vascular disease. CNS series 2003; 1-46.
[2]   J:/ Shukla Maj Ashish Kumar. Pdf
[3]   Adams H P J r, Bendixen BH, Kappelle LJ et al. Stroke 1993; 24:35-41.
[4]   http://umm.edu/make-an-appointment
[5]   JohnstonK C, Li JY, Lyden PD., et al. Stroke 1998; 29: 447.