

Frequency of Aspiration Pneumonia in Patients with Stroke

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ABSTRACT

Background: Among persons over sixty, stroke is the 2nd major cause of death, and the sixth greatest cause of death among those aged 15 to 59 years. It is also one of the most common causes of disability and death. Respiratory complications are very common in stroke patients. Pneumonia affects up to a third of those who have had a stroke.

Objective: To find out frequency of aspiration pneumonia in stroke patients

Methodology: This study design was Descriptive cross-sectional conducted at the Medicine department, Khyber Teaching Hospital, Peshawar from 15th October 2019 to 15th April 2020. All patients admitted in medical D unit meeting the inclusion criteria were included in the study. Necessary investigations such as sputum examination, chest x-ray, total leukocyte count and physical examination was done to confirm aspiration pneumonia. Data analysis was done by using IBM SPSS version 23.

Results: Ischemic stroke amongst 100 patients was observed in 68(68%) patients while hemorrhagic stroke was observed in 32(32%) patients. Amongst 100 stroke patients aspiration pneumonia was observed in 17(17%) patients whereas it was not observed in 83(83%) patients.

Conclusion: Our study concludes that frequency of aspiration pneumonia in patients with stroke is high in our population. Aspiration pneumonia should be early diagnosed and it should be properly managed to decrease the mortality and morbidity.

Keywords: Aspiration pneumonia; Stroke; Mortality

INTRODUCTION

Among persons over sixty, stroke is the 2nd major cause of death, and sixth greatest cause of death among those aged 15 to 59 years. It is also one of the most common causes of disability and death ¹⁻³. Ischemic stroke is the commonest subtype of stroke followed by hemorrhagic stroke. Hemorrhagic stroke is less common than ischemic stroke but have higher mortality rates than ischemic stroke ⁴.

Acute neurologic impairment induced by a cerebrovascular etiology is known as a stroke. Hemorrhagic stroke and Ischemic stroke are two types of stroke. Hemorrhagic stroke is caused by the rupture of a cerebrospinal artery, resulting in intra-parenchymal, subarachnoid, and intra-ventricular bleeding. Ischemic stroke is caused by the blockage or critical stenosis of a cerebrospinal artery ^{5,6}.

Respiratory complications are very common in stroke patients ⁷⁻⁹. Pneumonia affects up to a third of those who have had a stroke ¹⁰. Respiratory failure from stroke needs intubation ¹¹. The use of nasogastric intubation and ventilator assistance is associated with its own risk of pneumonia ¹². The mortality rate from ventilator-associated pneumonia is estimated to be 24% to 50% ¹³. Following a stroke, pneumonia has the greatest attributable mortality of all medical consequences. A retrospective review found that the 30-day mortality rate from aspiration pneumonia is 21% overall and slightly higher in healthcare-associated aspiration pneumonia (29.7%) ¹⁴. Within 48 hours of an acute stroke, pneumonia is the most prevalent cause of fever, and it is also the most common cause of common medical consequences within 30 days after a supratentorial

infarction ¹⁵.

Patients with intracerebral hemorrhage have not been studied for pulmonary consequences in our population. At the moment, the majority of data is derived from stroke series that include individuals who have had both ischemic stroke and hemorrhagic stroke. This study was piloted with the objective to find out the frequency of aspiration pneumonia in patients with stroke and make strategies for prevention in high risk patients.

MATERIALS AND METHODS

This study design was Descriptive cross-sectional conducted at the Medicine department, Khyber Teaching Hospital, Peshawar from 15th October 2019 to 15th April 2020. Sample size was 100 using 15% of prevalence of aspiration pneumonia in stroke patients, 95% confidence level in 7% margin of error ¹⁶. The inclusion criteria for our study was both male and female stroke patients having age 40-80 years and patients with any GCS(Glasgow coma scale) level whereas the exclusion criteria was patients having history of lung disease, patient having old chest X ray , CT lung , MRI lung showing lung disease at the time of arrival, patients having history of congestive cardiac failure or chest X ray showing cardiomegaly or pulmonary edema, patients having co-morbid conditions mimicking stroke such as hypoglycemia, diabetic ketoacidosis, hyperglycemic hyperosmolar coma, septicemia,encephalopathy, encephalitis, meningitis, patients who have developed aspiration or chest infection before occurrence of stroke, other neurological diseases causing swallowing problems such as myasthenia gravis,

subarachnoid hemorrhage and extradural and subdural hematoma. The study was conducted after approval was obtained from CPSP research and ethics board. All patients admitted in medical D unit meeting the inclusion criteria were included in the study. The aim and advantage of study was explained to obtain consent from patient or attendant of patient. Necessary investigations such as sputum examination, chest x-ray, total leukocyte count and physical examination was done to confirm aspiration pneumonia. Informations like name, age, gender and hospital number, date, ischemic stroke or haemorrhagic stroke and aspiration pneumonia was recorded in a pre-designed Performa. Data analysis was done by using IBM SPSS version 23. Quantitative variables were described as means + standard deviation whereas categorical data was described as frequency and percentages.

RESULTS

In our study, the number of stroke patients were 16(16%), 22(22%), 30(30%) and 32(32%) in age group 40-50 years, 51-60, 61-70 and 71-80 years respectively with mean age was 62 years and ± 10.27 standard deviation. (Figure 1) Gender distribution among 100 patients was analyzed as most of the patients 58(58%) were male while 42(42%) patients were female. (Figure 2) Ischemic stroke amongst 100 patients was observed in 68(68%) patients while hemorrhagic stroke was observed in 32(32%) patients. (Figure 3) Amongst 100 stroke patients aspiration pneumonia was observed in 17(17%) patients whereas it was not observed in 83(83%) patients. (Figure 4)

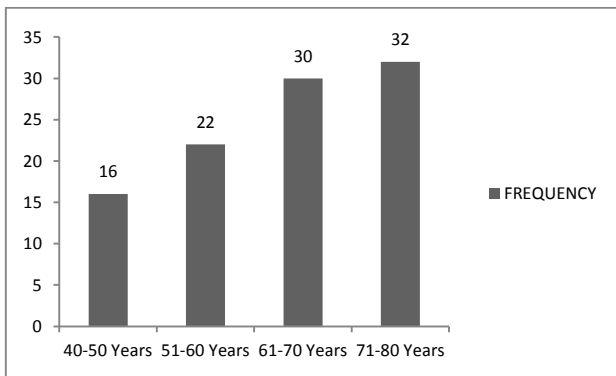


Figure 1: Age base distribution of stroke patients

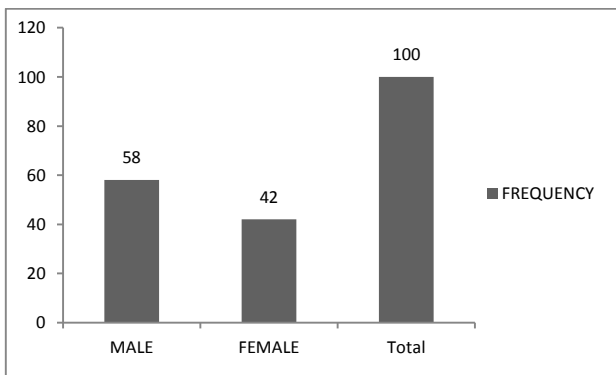


Figure 2: Gender base distribution of stroke patients

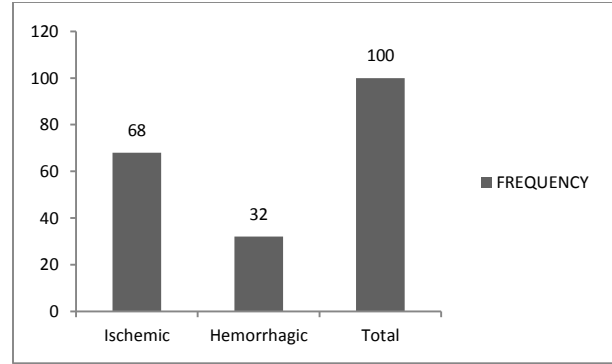


Figure 3: Types of strokes in selected subjects

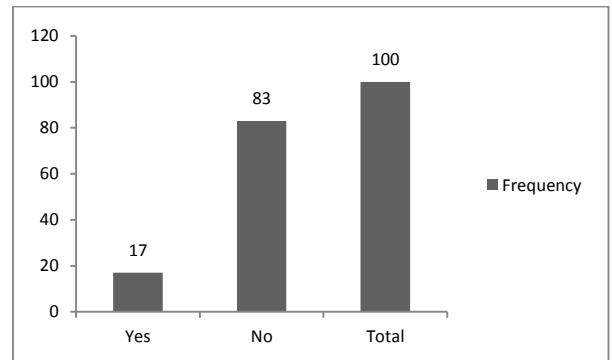


Figure 4: Frequency of aspiration pneumonia in patients with strokes

DISCUSSION

Patients with an acute ischemic stroke are more likely to develop aspiration pneumonia, which is linked to increased mortality, morbidity, and medical expenses. In the past, the incidence and prognosis of stroke-related pneumonia in our country had not been adequately investigated. However, the purpose of this investigation was to determine the prevalence of aspiration pneumonia in stroke patients.

In our study, the number of stroke patients were 16(16%), 22(22%), 30(30%) and 32(32%) in age group 40-50 years, 51-60, 61-70 and 71-80 years respectively with mean age was 62 years and ± 10.27 standard deviation. Gender distribution among 100 patients was analyzed as most of the patients 58(58%) were male while 42(42%) patients were female. Ischemic stroke amongst 100 patients was observed in 68(68%) patients while hemorrhagic stroke was observed in 32(32%) patients. Amongst 100 stroke patients aspiration pneumonia was observed in 17(17%) patients whereas it was not observed in 83(83%) patients. In comparison to our study, another study carried out by Lanspa M et al. reported aspiration pneumonia in 23% patients with stroke¹⁷. Another study done by JY Huang et al. reported higher frequency (33.3%) than our results¹⁸. Another study also reported higher incidence (38%) of aspiration pneumonia than our study¹⁹. A study done by Kimura K et al. reported 15% frequency of aspiration pneumonia in stroke patients. The mean age in these patients was 60 years and males were 60% while females were 40%. These findings were similar to our observation²⁰. Another study reported higher frequency of aspiration pneumonia in patients having similar mean age

and male to female ratio to our study ²¹. In summary, the frequency of aspiration pneumonia in patients with stroke observed our research is comparable to that seen in previous investigations. However, further research is needed to confirm our results.

CONCLUSION

Our study concludes that frequency of aspiration pneumonia in patients with stroke is high in our population. Aspiration pneumonia should be early diagnosed and it should be properly managed to decrease the mortality and morbidity.

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