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ORIGINAL ARTICLE

Functional Outcome in Patients with Hemorrhagic Stroke

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ABSTRACT

Introduction: Hemorrhagic stroke is a condition in which the weakened blood vessels ruptures and bleed into surrounding brain parenchyma or in surrounding meningeal spaces. Despite of current advances in determining of its pathophysiology and new treatment approaches, acute hemorrhagic stroke remain a least treatable stroke and the overall mortality ranges from 20 to 40%.

Objective: To determine functional outcome in patients with hemorrhagic stroke.

Materials and methods: This study was cross sectional descriptive study carried out at the Department of Medicine, Lady Reading Hospital, Peshawar for duration of six months from January 2022 to July 2022. Data collection was done for all the patients by using pre-designed Performa. Data was entered in Excel sheet and analysis of data was done by employing SPSS version 17.

Results: Functional outcome according to GCS score among 181 patients was observed as 13(7%) patients had good recovery (return to pre injury functional level), 32(18%) patients had moderate disability (deficit with ability to look after self), 54(30%) patients had severe disability (in able to look after self), 44(24%) patients had persistent vegetative state (no higher mental functions), 38(21%) patients had death (no vital signs).

Conclusion: Our study concludes that in our setup 7% patients had good recovery, 18% patients had moderate disability, 30% patients had severe disability, 24% patients had persistent vegetative state while the motility rate was 21% patients.

Keywords: functional outcome, hemorrhagic, stroke.

INTRODUCTION

Hemorrhagic stroke is a condition in which the weakened blood vessels ruptures and bleed into surrounding brain parenchyma or in surrounding meningeal spaces. The blood accumulates and compresses the surrounding brain tissue [1].

Incidence of the disease is 15 per 100,000 and the overall risk increases with age [2]. Intracerebral hemorrhage causes about 10% of the acute stroke events but more common in developed countries [3]. Despite of current advances in determining of its pathophysiology and new treatment approaches, acute hemorrhagic stroke remain a least treatable stroke and the overall mortality ranges from 20 to 40%. Up to 20% of survivors who were functionally independent at six months still had poor outcomes [4]. The etiological factors that are responsible for acute hemorrhagic stroke are hypertension, AV malformation, aneurysm, chronic anticoagulants use, coagulopathies, vasculitis, and cerebral amyloidosis [5]. The source and extent of the bleeding determine the course of care for individuals who have had an acute intracerebral haemorrhage, support of basic life along with the control of seizures, intracranial pressure, bleeding and blood pressure [6, 7]. Persistent controversy exists whether there will be any benefit of lowering blood pressure in hemorrhagic stroke [8]. Previously in many studies it was concluded that early blood pressure control alters the auto regulation mechanisms in brain vasculature that leads to cerebral hypo perfusion [9-12]. The present study was designed to determine the early functional recovery in term of Glasgow outcome score in patients with hemorrhagic stroke. The management of acute hemorrhagic stroke is controversial and no clear guidelines are available, this study is designed as one of many steps in providing local evidence about the hemorrhagic stroke. The result of this study will be used as first hand local evidence for identifying further research.

MATERIALS AND METHODS

This study was cross sectional descriptive study carried out at the Department of Medicine, Lady Reading Hospital, Peshawar. The study was carried out for duration of six months from January 2022 to July 2022. The calculated sample size based on WHO sample size calculator was 181 patients by taking 13.6% improvement rate, 5% margin error and 95% confidence interval. Non-probability consecutive sampling technique was employed. The inclusion criteria for our study were all patients with acute hemorrhagic stroke presented within 24 hours of onset at arrival, patients of all age groups above 18 – 60 years and patients of both genders. The exclusion criteria of the current study were all patients having previous neurological deficit of more than 24 hours duration at arrival, patients having space occupying lesions and patients having ventriculo-peritonial shunts or prior neurosurgical intervention. Ethical approval was taken from the institutional review board of research. The study was conducted after approval from hospital ethical and research committee. The patients fulfilling the inclusion criteria were enrolled from outpatient department and emergency department. Informed consent was signed from the included patients. A detail clinical history was taken from all the patents then they were examined for routine testing like CBC, metabolic profile and CT scan. After surgery all the patients were followed for three days. Data collection was done for all the patients by using pre-designed Performa. Data was entered in Excel sheet and analysis of data was done by employing SPSS version 17. Variables like age, illness duration and initial CGS were determined in the form of mean and standard deviations while functional outcomes and gender were determined as frequencies and percentages.

RESULTS

In the current study, totally 181 patients were enrolled. There were 112(62%) male patients while 69(38%) were female patients. (Figure 1) The mean (±SD) age in this study was 50 (±2.16.) years. The patients were categorized into four age groups. There were 14(8%) patients in the 20-30 years age group, 38(21%) patients were in 31-40 years age group, 41-50 years age group patients were 74(41%) while in 51-40 years age group 55(30%) patients were observed. (Figure 2)

Initial GCS score among 181 patients was analyzed as 45(25%) patients had favorable outcome as the GCS score ≥ 4 while 136(75%) patients had un favorable outcome as the GCS score < 4. (Figure 3)

Functional outcome according to GCS score among 181

patients was observed as 13(7%) patients had good recovery (return to pre injury functional level), 32(18%) patients had moderate disability (deficit with ability to look after self), 54(30%) patients had severe disability (in able to look after self), 44(24%) patients had persistent vegetative state (no higher mental functions), 38(21%) patients had death (no vital signs). (Figure 4)

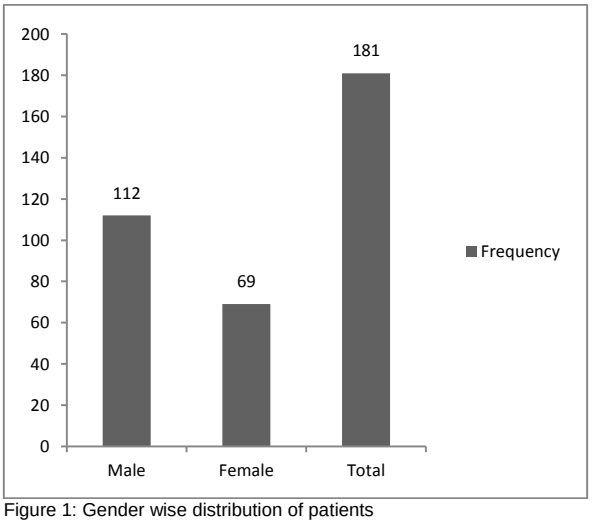

Figure 1: Gender wise distribution of patients

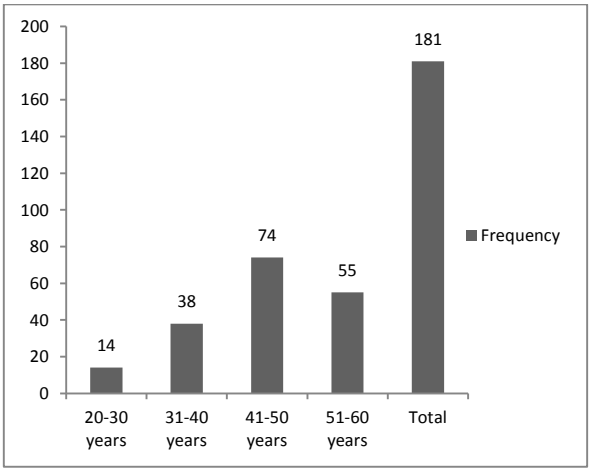

Figure 2: Age wise distribution of patients

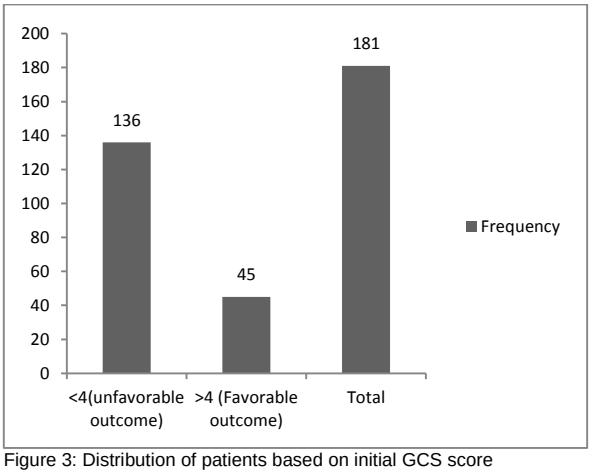

Figure 3: Distribution of patients based on initial GCS score

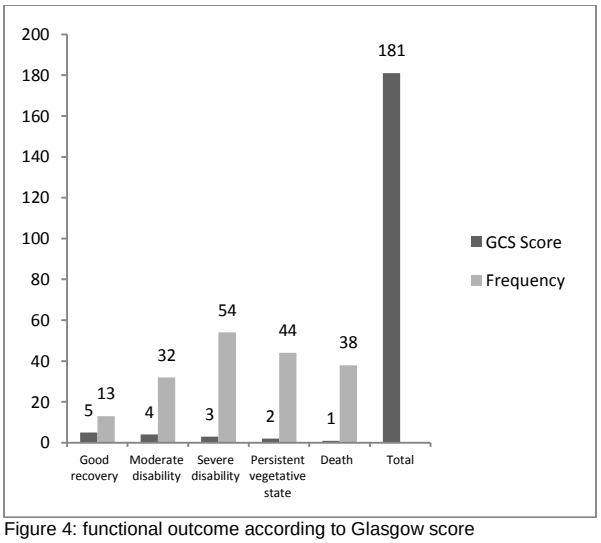

Figure 4: functional outcome according to Glasgow score

DISCUSSION

Hemorrhagic stroke is a condition in which the weakened blood vessels ruptures and bleeds into surrounding brain parenchyma or in surrounding meningeal spaces. The blood accumulates and compresses the surrounding brain tissue [1]. Incidence of the disease is 15 per 100,000 and the overall risk increases with age [2]. Intracerebral hemorrhage causes about 10% of the acute stroke events but more common in developed countries [3]. Despite of current advances in determining of its pathophysiology and new treatment approaches, acute hemorrhagic stroke remain a least treatable stroke and the overall mortality ranges from 20 to 40%. Up to 20% of survivors who were functionally independent at six months still had poor outcomes [4]. In the current study, totally 181 patients were enrolled. There were 112(62%) male patients while 69(38%) were female patients. The mean (±SD) age in this study was 50 (±2.16.) years. The patients were categorized into four age groups. There were 14(8%) patients in the 20-30 years age group, 38(21%) patients were in 31-40 years age group, 41-50 years age group patients were 74(41%) while in 51-40 years age group 55(30%) patients were observed.

Initial GCS score among 181 patients was analyzed as 45(25%) patients had favorable outcome as the GCS score ≥ 4 while 136(75%) patients had un-favorable outcome as the GCS score < 4.

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Similar conclusions were made in the study by Marwat MA et al, which found that hypertension was the main cause of hemorrhagic stroke in 75% of patients. The reasons were an intracranial haemorrhage of 29.5% and a 50% cerebral infarction. When the findings of these individuals were revealed a week after their presentations, 24 (27.2%) among them had passed away. 12 (13.6%) patients totally recovered, 30 (34%) cases showed moderate improvement, and 22 (25%) cases showed no improvement [13].

Mortality was found in 2% of patients in a different research by Khan SN et al., along with poor outcomes in 76% and good outcomes in 22% of individuals [14]. According to a research by Hassan A. et al., stroke patients made up 23% of those who had pneumonia related to their stroke, and 34% of those patients died while they were hospitalized [15].

There was no statistically significant difference in survival

among men and women (p = 0.2) in a different research by Kojic B et al. Over 70-year-old patients had the lowest survival rate (9%), whereas patients between the ages of 41 and 50 had the best survival rate (60.5%). According to his research, acute and subacute hemorrhagic stroke patients have a very high chance of dying. Within a period of five years, the survival rate following a hemorrhagic stroke was found to be 26.7%. The prognosis for long-term survival is substantially higher in younger people who do not use alcohol, have hypertension, or have diabetes mellitus [16].

CONCLUSION

Our study concludes that in our setup 7% patients had good recovery, 18% patients had moderate disability, 30% patients had severe disability, 24% patients had persistent vegetative state while the motility rate was 21% patients.

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