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Surgically Managed Hypertensive Intracerebral Bleed: An Analysis

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I. INTRODUCTION

Intracerebral haemorrhage (ICH) impacts over one million individuals globally each year and is the most lethal and debilitating kind of stroke. [1] [2].The most frequent risk factor for spontaneous ICH is uncontrolled hypertension (HTN). [3] [4]. The incidence of ICH is greater among Asians, owing in part to a lack of healthcare system for uncontrolled hypertension and non-adherence. [5] [6]. The most effective method for reducing the burden of ICH is likely to be primary prevention with antihypertensive medication.Primary and secondary intracerebral bleeding (anticoagulant-induced) show comparable underlying clinical alterations [2]. Intracerebral bleeding frequently occurs in the cerebral lobes, basal ganglia, thalamus, brain stem (predominantly the pons), and cerebellum as a result of burst arteries caused by degenerative changes caused by hypertension or cerebral amyloid angiopathy. [1].The majority of bleeding occurs at or around the bifurcation of tiny penetrating arteries that start from basilar arteries or the anterior, middle, or posterior cerebral arteries in hypertension-related intracerebral haemorrhage [1]. Small artery branches with a diameter of 50–700 m frequently rupture several times; some are accompanied with layers of platelet and fibrin aggregation. These lesions are defined by elastic lamina rupture, smooth muscle atrophy and fragmentation, dissections, and granular or vesicular cellular degeneration [1,2] Classic manifestations, such as sudden development of localized neurological impairments, reduced awareness, and indications of brainstem dysfunction, are related to the size and location of the haematoma 1. Neurological impairment occurs often before to [3] and during [2] hospitalization and is associated with early haematoma expansion or late oedema worsening [3].For diagnostic purposes While CT scanning is the first line of diagnostics, MRI with gradient echo may identify hyperacute intracerebral hemorrhage with comparable sensitivity and overall accuracy and is more accurate in detecting microhaemorrhages.Three management tasks are critical in intracerebral haemorrhage, according to clinical evidence: halting the bleeding, removing the clot, and maintaining cerebral perfusion pressure.

II. MATERIAL AND METHODS

The aim of the study was- To analyze the outcome in patients with Hypertensive intracerebral bleed managed surgically.

The Objectives of the study where- 1) To corelate admission time Blood Pressure with hematoma volume.2) To corelate admission time GCS to treatment outcome. 3)To observe recovery pattern in survivors at 1 and 3 months.

III. OBSERVATION

Table- 1
GCS CATEGORY

GCS CATEGORY	Frequency	Percent
LOW	26	44.06
MODERATE	17	28.81

GOOD	16	27.11
Total	59	100

Majority of patients enrolled in this study had a low score on Glasgow Coma Scale (44%) whereas cases with moderate and good GCS score were almost equal in number (28.9 and 27.1% respectively).

Table no- 2

HEMATOMA VOLUME IN RELATION TO SYSTOLIC BLOOD PRESSURE

SYSTOLIC BLOOD PRESSURE	HEMATOMA VOLUME (Mean)	N	Std. Deviation
<160	34.28	25	17.018
161 – 180	33.68	22	16.623
181 – 200	45.00	10	20.276
> 200	97.50	2	31.820
Total	38.02	59	21.088

The above table and figure show systolic BP groups with hematoma volume where highest mean value been observed in >200 category followed by in the range of 181 – 200.

Table no-3

HEMATOMA VOLUME IN RELATION TO DIASTOLIC BLOOD PRESSURE

DIASTOLIC BLOOD PRESSURE	HEMATOMA VOLUME (Mean)	N	Std. Deviation
< 90	35.83	12	16.073
90 – 100	38.83	36	23.544
101 – 110	40.00	7	20.000
> 111	33.75	4	17.970
Total	38.02	59	21.088

The above table and figure show diastolic bp groups with hematoma volume where the highest mean value been observed in 101 – 110 categories followed by in the range of 90 – 100.

Table no.- 4

HEMATOMA VOLUME IN RELATION TO MEAN ARTERIAL PRESSURE.

MAP	Mean	N	Std. Deviation
90 -100	31.67	6	16.931
101 – 110	28.13	8	14.126
111 – 120	38.77	26	16.384
> 121	43.16	19	28.588
Total	38.02	59	21.088

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The above table and figure show mean arterial pressure with hematoma volume where the highest mean value been observed in the range of > 121 level followed by the range of 111 – 120.

Table no- 5
GCS CATEGORY WITH MORTALITY

GCS	MORTALITY	PERCENTAGE
LOW (3-8)	12/26	46.15%
MODERATE (9-12)	3/17	17.65%
GOOD(13-15)	0/16	0%

Table No-6
GCS CATEGORY VS 3 MONTH OUTCOME BASED ON RANKIN SCORE

GCS CATEGORY	WORSENED	UNCHANGED	IMPROVED	TOTAL
LOW (3-8)	0	11(78.5%)	3(21.5%)	14
MODERATE (9-12)	1(7.5%)	12(85%)	1(7.5%)	14
GOOD (13-15)	0	9(56.3%)	7(43.7%)	16

IV. DISCUSSION

Hematoma volume shows great variability in hemorrhagic stroke and is a great predictor of outcome. The findings of our study reveal a proportional relation between admission time systolic BP and Mean arterial pressure with hematoma volume but was not the case when corelated with diastolic BP. In this study, in the evaluation of all patients, we found a statistically significant correlation of the level of consciousness to outcome. In 26 patients with GCS 3–8, nearly half (46.15%) of the patients expired whereas only 3 out of 17 patients with GCS 9–12, i.e., 17.65% patients expired there by suggesting significant role of GCS to outcome. In 16 patients with GCS 13–15, all the patients had a good recovery and none of them expired.This study also compares the GCS category with the short-term outcome (3 months) in patients. We found a maximum improvement in Rankin Score in Good GCS category (43.7%) and the least improvement in Moderate GCS category (7.5%). Also, patients in Moderate group had the most patients with Unchanged Rankin Score, whereas patients whose Rankin Score increased (condition worsened) where mainly seen in Moderate category (7.5%).In surgically managed patients, outcome at 3 months suggested patients in Low GCS Category showed maximum deterioration in Rankin Score (2/16). Unchanged outcome was also seen maximum in Low GCS group patients (13/16) followed by Moderate and Good GCS groups respectively.

V. CONCLUSION

- Systolic BP and Mean Arterial Pressure immediately after onset of haemorrhage has a positive co-relation to hematoma volume and the association is statistically significant (Higher the Systolic BP/ Mean Arterial Pressure- Higher the Hematoma Volume).
- Admission time GCS has positive co-relation to outcome and has statistically significant association. (100% survival in Good GCS group vs 53.85% in Poor GCS group).
- Recovery pattern in initial 3 months (i.e.the study period) remains slow as adjudged by modified Rankin scoring system.
- Surgery, when required, does not enhance the neurological recovery but probably may reduce mortality in high hematoma volume patients.

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