

**To study Clinical presentation and Etiology of Intraventricular Hemorrhage in Adults.**Dr. Ridhima Gupta<sup>1</sup>, Dr.G.L.Meena<sup>2\*</sup><sup>1</sup>Assistant Professor, <sup>2</sup>Senior Professor

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**Correspondence Author:** DR.G.L.MEENA, Department of Radiodiagnosis, SP Medical College & Associate Group of PBM Hospitals, Bikaner, India**Conflicts of Interest:** Nil**Abstract****Background:** Intraventricular hemorrhage (IVH), bleeding in the ventricular system without a discernable parenchymal fragment, is a rare neurological disorder.**Method-** This study was carried out on 40 patients of either sex of various age group treated at SDM Hospital, Jaipur, who have undergone CT scan of head.**Result-**75% of cases was male and 25% were female. Maximum cases (22.5%) in 61-70 yrs age group. Majority of cases (92.5%) had lateral ventricular involvement. Nearly 40% cases due to Hypertension.**Conclusion:** Emergency diagnosis and management in neurological intensive care, or stroke units, with hypertension treatment, administration of haemostatic agents and general therapeutic measures for critically ill neurological patients may positively influence the outcome.**Keywords:** Hypertension (HT), Intraventricular hemorrhage (IVH), CT scan.**Introduction**

Intraventricular hemorrhage (IVH), bleeding in the ventricular system without a discernable parenchymal fragment, is a rare neurological disorder. IVH was defined for the first time by Sanders in 1881 as the flooding of the ventricle by blood without the presence of any rupture or laceration in the ventricular wall (. The incidence of IVH among all the patients with intracranial hemorrhage is

3.1% where this rises to 9% among the patients having intraparenchymal hematoma. The prognosis of patients with primary IVH has been reported to be better than the prognosis of the patients with a diagnosis of secondary intraventricular hemorrhage.

Intraventricular hemorrhage was considered a fatal disease in the era before modern brain imaging because it could be diagnosed only during postmortem examination. The introduction of brain imaging techniques has enabled diagnosis of PIVH and therefore also in patients with less extensive hemorrhage but relatively little is known about the clinical and imaging features, etiology and prognosis. Most series of patients with intraventricular hemorrhage also include those with secondary or traumatic hemorrhages or the few reported series of patients have often been small.

**Material and Methods**

This study was carried out on 40 patients of either sex of various age group treated at SDM Hospital, Jaipur, who have undergone CT scan of head.

We recorded the following clinical data (variables): (i) individual characteristics and risk factors – sex, age, history of arterial hypertension (systolic pressure higher than 160 mmHg or diastolic higher than 90 mmHg or the patient was under antihypertensive therapy), diabetes (previous diagnosis of diabetes and/or past or present use of antidiabetic agents or need of antidiabetic treatment on

discharge), previous stroke (ischemic or hemorrhagic) and use of antiplatelet or anticoagulant medication; (ii) clinical features at onset; (iii) initial neurological examination and clinical parameters on admission such as blood pressure, Full Outline of Unresponsiveness (FOUR) Score, Glasgow Coma Scale (GCS); (iv) initial features of PIVH (ventricles involved, amount of blood, presence of hydrocephalus) and (v) clinical course and outcome.

**Results**

Table no.1.Distribution of cases according to age and sex

S.No	Age (yrs)	Male	Female	Total	%
1	0-10	5	0	5	12.5
2	11-20	0	1	1	2.5
3	21-30	2	0	2	5
4	31-40	2	2	4	10
5	41-50	4	1	5	12.5
6	51-60	4	1	5	12.5
7	61-70	6	3	9	22.5
8	71-80	3	1	4	10
9	81-90	3	2	5	12.5
	<b>Total</b>	<b>30(75%)</b>	<b>10(25%)</b>	<b>40</b>	<b>100%</b>

75% of cases were male and 25% were female. Maximum cases (22.5%) in 61-70 yrs age group.

Table no.2.Distribution of cases according GCS score at admission.

GCS score	No. of case
3-5	5(12.5%)
6-10	31(77.5%)
11-15	4(10%)
<b>Total</b>	<b>40(100%)</b>

Almost 77.5% patients had fair GCS score of 6-10.

Table no.3.Distribution of cases according to ventricular involvement

Ventricle	No. of cases
3 <sup>rd</sup>	20(50%)
4 <sup>th</sup>	13(32.5%)
Right lateral	31(77.5%)

Left lateral	37(92.5%)
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Majority of cases (92.5%) had lateral ventricular involvement.

Table no.4.Distribution of cases according to etiology

Etiology	No. of cases
Hypertension	16(40%)
Trauma	13(32.5%)
Aneurismal	2(5%)
Coagulopathy	1(2.5%)
Undetermined	8(20%)
<b>Total</b>	<b>40(100%)</b>

Nearly 40% cases due to Hypertension.

**Discussion**

In our study 75% of cases were male and 25% were female. Maximum cases (22.5%) in 61-70 yrs age group. Graeb et al<sup>3</sup> in their study found similar age and sex distribution.

In our study Majority of cases (92.5%) had lateral ventricular involvement. Weierg LA et al<sup>4</sup> found the same result in their study.

Trauma was the most frequent cause in patients less than 50 yrs while HT was the predominant cause in patients more than 50 yrs.

Hypertension is the main and the most common risk factor in the development of ICH, particularly in the basal ganglia, thalamus, pons and deep cerebellar white matter. Hypertensive ICH in these localizations are particularly common in patients with chronic hypertension, and they are not in compliance with blood pressure management. In chronic uncontrolled hypertension the pathophysiologic

mechanism is the development of Charcot Bouchard aneurysms within the distal microarteriolar vascular bed in three arterial territories: lenticulostriates, thalamoperforators and paramedian branches of the basilar artery<sup>3</sup>.

Most bleeding in ICH related to hypertension occur at or near the bifurcation of small penetrating arteries that originate from basilar arterie or the anterior, middle or posterior cerebral arteries. Multiple sites of rupture can be found in small artery branches of 50–700 mm in diameter, and some ruptures are associated with layers of platelet and fibrin aggregates<sup>4,5</sup>. These lesions include breakage of elastic lamina, atrophy and fragmentation of smooth muscle, dissections and granular or vesicular cellular degeneration. In elderly patients lipid deposition as a result of severe atherosclerosis can be found. In small proportion of patients fibrinoid necrosis of the subendothelium with subsequent focal dilatations (microaneurysms) which can lead to rupture in small proportion of patients is being described<sup>4</sup>.

### **Conclusion**

ICH is a small vessel disease with high mortality and morbidity. Emergency diagnosis and management in neurological intensive care, or stroke units, with hypertension treatment, administration of haemostatic agents and general therapeutic measures for critically ill neurological patients may positively influence the outcome.

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