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ROLE OF CLINICAL AND IMAGING FEATURES IN THE PREDICTION OF CLINICAL OUTCOME IN ACUTE CEREBELLAR STROKE

Neurology

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ABSTRACT

Aim: To study about the role of clinical and imaging features in the prediction of clinical outcome in acute cerebellar stroke.

Methods: This study is a prospective analytical study carried out in stroke unit of Institute of Neurology, Madras Medical College, Chennai from January 2014 to April 2015.

The clinical and imaging features including the volume of acute cerebellar stroke at the time of admission, during the hospital course are monitored to analyze the clinical outcome.

Results: This study is done in 50 patients with acute cerebellar stroke – Ischemic stroke (58%), Hemorrhagic stroke (42%). Mean age in males (53.68), Females (62.00).Incidence in males (82%), Females (18%). Statistical analysis revealed Low GCS score was associated with poor clinical outcome ($p<0.0001$). Low NIHSS score was associated with good clinical outcome ($p<0.0001$). CT Brain is highly sensitive in detecting hemorrhagic stroke and its complications ($p<0.0001$). MRI Brain is highly sensitive in detecting ischemic stroke and its complications ($p<0.0001$). Management of brain stem complications in appropriate time showed good clinical outcome ($p<0.0001$).Cerebellar hemorrhage size <3 cm showed good clinical outcome. 3-5cm showed good clinical outcome with surgery. >5cm showed poor clinical outcome in spite of surgery ($p<0.0001$).

Conclusion: In acute cerebellar stroke, monitoring the clinical and imaging features help us to detect the complications early. Appropriate management in time gives good clinical outcome.

KEYWORDS

Acute Cerebellar Stroke, Clinical features, Imaging features, Clinical outcome.

Introduction:
Acute Cerebellar Stroke accounts for 2-3% of all strokes. Mortality is high in acute cerebellar stroke, due to complications such as brain stem compression and hydrocephalus.

Aim:
To study about the role of clinical and imaging features in the prediction of clinical outcome in acute cerebellar stroke.

Methods:
This study is a prospective analytical study carried out in stroke unit of Institute of Neurology, Madras Medical College, Chennai from January 2014 to April 2015.

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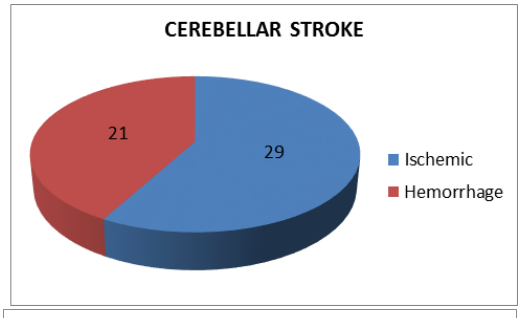

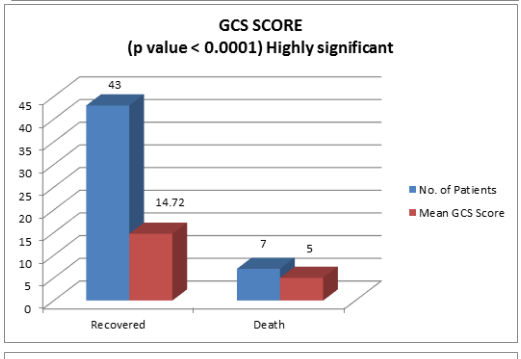

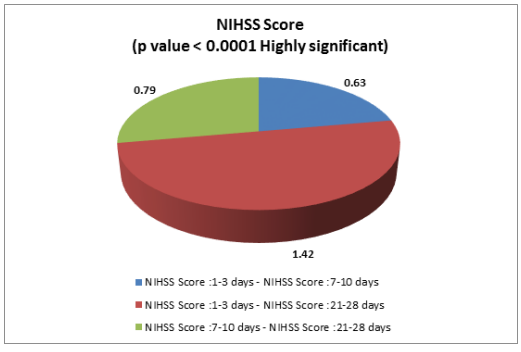

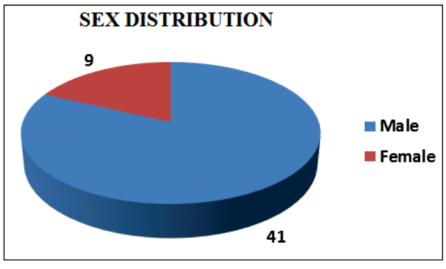

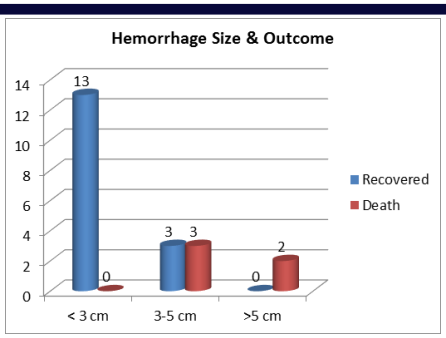

DISCUSSION

Cerebellum is the part of the hind brain associated with motor control, cognitive functions and coordination. Cerebellar dysfunction produces disorders in fine movement, equilibrium, posture and motor learning.

Cerebellum is functionally divided into spinocerebellum which is associated with maintenance of muscle tone, cerebrocerebellum which is associated with planning programming and coordination of skilled movements, and vestibulocerebellum which is associated with equlibrium.

Cerebellum is supplied by superior cerebellar artery, anterior inferior inferior cerebellar artery and posterior inferior cerebellar artery.

Cerebellar Stroke may be infarction or hemorrhage. Infarction maybe due to thrombosis or embolism. Cerebellar bleed maybe due to brain trauma, aneurysms, arteriovenous malformations, brain tumors and high blood pressure.

The common risk factors for cerebellar stroke are age, gender, hypertension, diabetes mellitus, cardiac disease, smoking, alcohol consumption, dyslipidemia, elevated homocysteine and others.

Glasgow coma scale at the time of presentation and in hospital course is useful in predicting the prognosis[4,7].

National institute of health strokes scale or NIHSS is useful in predicting the prognosis[4].

MRI is (Magnetic resonance imaging) is useful in detecting cerebellar infarction and its complications. MRA (Magnetic resonance angiography) is useful in detecting the arterial territory. CT (Computed tomography) imaging is useful in detecting cerebellar bleed and its complications.

Cerebellar stroke is associated with complications such as brain stem edema and hydrocephalus may result in brain sterm herniation, associated with poor outcome. Surgery in appropriate time in the form of decompressive craniectomy or extra ventricular drainage helps in decreasing mortality[1].

Barthel index and modified ranskin scale is used to assess the disability after cerebellar stroke[4].

This study was done in 50 patients with acute cerebellar stroke, ischemic stroke (58%), Hemorrhage stroke (42%)

Age is a non modifiable risk factor for cerebellar stroke. As the age advances the risk of cerebellar stroke is increasing. Male predominance is noted. (82%) Hypertension, Dyslipidemia, smoking, alcohol, heart disease, hematological problem were the common risk factors[5].

Headache, vomiting, vertigo, ataxia were common symptoms. Poor GCS score is associated with high mortality (P<0.0001)[4,7]. High NIHSS score at the time of admission is associated with poor prognosis[4] (P<0.0001).

MRI Brain is highly sensitive in detecting ischemic cerebellar stoke (P<0.0001). MRA Brain is highly useful in detecting the vascular territory involved in ischemic cerebellar stroke. Common arterial territory involved is posterior inferior cerebellar artery[3].

CT Brain is highly sensitive in detecting hemorrhagic cerebellar stroke (P<0.0001). Hemorrhage size less than 3 cm had good prognosis. Hemorrhage size 3-5 cm with surgery was associated with good outcome. Hemorrhage size more than 5 cm was associated with high mortality.

Cerebellar stoke with evidence of brainstem compression was associated with poor prognosis. Early surgical management was associated with favorable clinical outcome (P<0.001). Decompressive craniectomy and External ventricular drainage in appropriate time is associated with good prognosis[1,2,6,7]. Hemorrhagic cerebellar stroke patient had more disability than Ischemic cerebellar stroke[4].

CONCLUSION

In acute cerebellar stroke, monitoring the clinical and imaging features help us to detect the complications early. Appropriate management in time gives good clinical outcome.

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