Section: Medicine

Original Research Article

STUDY OF CLINICAL PROFILE IN PATIENTS WITH ALTERED SENSORIUM IN OSMANIA GENERAL HOSPITAL

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Abstract

Background: To study the clinical profile in patients with altered sensorium. **Materials and Methods:** All the 100 patients admitted in Osmania General Hospital with altered sensorium lasting for more than 6 hours are considered. A comprehensive history was obtained and detailed examination was done and all the patients were evaluated to identify the etiology, followed for the clinical profile and outcome of patients during the hospital stay. **Result:** Out of 100 patients the age group ranged from 14 years to 75 years with mean age 49.12±14.77 years. Most commonly affected age group was 51-60 years which constituted 28.0% of the cases followed by 41-50 years (21.0%) and 61-70 years age group (18%). Mortality and recovery with functional disability rate was higher in >50 years older patients, while recovery with good recovery rate was comparatively high in <50 years younger patients. **Conclusion:** Overall mortality was 37% and it was affected by increasing age, cerebrovascular accidents, metabolic and infectious etiology. Sample size is very small to make any reasonable conclusions. But present study can be a pilot for a larger study which can be undertaken.

INTRODUCTION

Since the days of the Greeks, men knew that normal conscious behavior reckons on intact brain function and hence the disorders of consciousness are implied as cerebral insufficiency. Impaired, reduced, or absent consciousness implies the presence of severe brain dysfunction and so demands immediate attention from the physician for expectation of potential recovery. Stupor and coma mean advanced brain failure, just as uremia means renal failure. If such brain failure lasts for a long time the margin between recovery and development of permanent neurologic injury becomes narrower.[1]

In hospital neurology, the clinical analysis of comatose patients becomes a responsibility. There is always urgency in a need to determine the underlying disease process causing coma and the direction in which it is evolving and also to protect the brain against irreversible or more serious damage.[2]

The terms stupor, confusion, unconsciousness, and coma have been endowed with many distinct meanings that it is almost not possible to avoid uncertainty in their usage. They are strictly not medical terms but literary, philosophic, and psychological ones as well.

Sensorium is the ability of the brain to receive and interpret sensory stimuli. (Good sensorium = alertness + awareness) Altered sensorium is not a disease. It is a symptom. Causes could be easily reversible (Hypoglycemia) to permanent (stroke) and from the relatively benign (alcohol intoxication) to life threatening (meningitis or encephalitis).

Altered sensorium of non-traumatic origin has its spectrum ranging from stuporous state to severe state of coma. These patients can land up in various outcomes as Vegetative state, akinetic mutism, abulia, and catatonia and locked in state.

AMS is often an acute or subacute event, and the timely identification of potentially treatable intracranial pathology is paramount to its management. Several non-imaging diagnostic tests have been proposed to predict imaging findings, but their utility is generally limited due to the urgency of the clinical situation. In mild traumatic brain injury, serum biomarkers, such as glial fibrillary acidic protein and ubiquitin C-terminal hydrolase,

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have been established as predictors of intracranial hemorrhage. In atraumatic scenarios, various tentative criteria have been advocated as foretelling of a positive brain scan, such as elevated diastolic blood pressure, focal weakness, low Glasgow Coma Scale score, antiplatelet/ anticoagulant use, plantar reflexes, presence of headache, dilated pupils, and low C-reactive protein.[3]

Neuroimaging, particularly noncontract head computed tomography (CT), provides the most rapid and effective screening tool for AMS. Although sometimes criticized for its "overuse," the gravity of delay leaves managing physicians' little leeway to forfeit brain imaging.

Physicians, being practical and objective for the most part, give greater plausibility to patient's behavior and response to overt stimuli than to what the patient says. So, they usually give the term consciousness its commonest and simplest meaning – the state of patient's awareness of self and environment and his responsiveness to external stimulus and inner need. Unconsciousness has the just opposite meaning – a state of unawareness of self and environment or a suspension of those mental activities by which people are made aware of themselves and their environment, coupled with a diminished responsiveness to environmental stimuli.

Unfortunately, there is no classic presentation for a patient with altered sensorium. Presentations can range from CNS Depression to confusion, agitation etc. Altered sensorium can be determined by evaluating level of consciousness. The physician cannot lose any time as the cause may be a reversible condition or a condition require aggressive management.

A study of altered sensorium in a patient is very important because it may save patient from death or future deficits by increased accuracy in diagnosis and prediction of prognosis. Hence present study aims at studying the non-traumatic state of altered sensorium, thereby reassessing the need for early recognition and more aggressive management of this condition.

Aim of the Study

1. To study the etiology of patients with altered sensorium
2. To analyse the clinical picture of patients with altered sensorium
3. To determine the outcome of patients with altered sensorium

MATERIALS AND METHODS

100 patients admitted with altered sensorium at Osmania General Hospital from March 2020 to February 2022.

Inclusion Criteria

All the patients with altered sensorium lasting for more than 6 hrs.

Exclusion Criteria

1) Patients with altered sensorium due to head trauma.
2) Transient unresponsiveness due to syncope

RESULTS

Table 1: Association of age with Gender

Age Group (years)	Male (n=65)	Female (n=35)
< 30	7 (10.8%)	6 (17.1%)
31 – 40	11 (16.9%)	5 (14.3%)
41 - 50	13 (20.0%)	8 (22.9%)
51 – 60	19 (29.2%)	9 (25.7%)
61-70	12 (8.5%)	6 (17.1%)
> 70	2 (4.6%)	1 (2.9%)
Mean±SD	48.68±14.52	48.09±15.37

Table 2: Distribution of the studied subjects on the basis of Etiology Neurological lll and non-neurological

Etiology neurological and Non – Neurological		No. of Cases (n=100)
Cerebrovascular accidents	ICH	17 (17.0%)
	Infarct	17 (17.0%)
	Subarachnoid hemorrhage	2 (2.0%)
Metabolic	Hepatic encephalopathy	10 (10.0%)
	Uremic coma	7 (7.0%)
	Hypoglycemia	7 (7.0%)
	Hyponatremia	5 (5.0%)
	Auto immune encephalitis	2 (2.0%)
Infection	Tuberculosis meningitis	6 (6.0%)
	Septic encephalopathy	4 (4.0%)
	Meningoencephalitis bacterial	4 (4.0%)
	Cerebral malaria	1 (1.0%)
	Viral encephalitis	1 (1.0%)
Drug over dosage and poisoning	Alcohol intoxication	4 (4.0%)
	Drug over dosage	3 (3.0%)
Intra cranial neoplasms		3 (3.0%)
Others		7 (7.0%)

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Table 3: Association of Neurological and non-neurological etiology with gender of the cases studied.

Etiology neurological & non- neurological	Male (n=65)	Female (n=35)
Cerebrovascular accidents	28 (43.1%)	8 (22.9%)
Metabolic	19 (29.2%)	12 (34.3%)
Infection	11 (16.9%)	5 (14.3%)
Drug over dosage and poisoning	3 (4.6%)	4 (11.4%)
Intra cranial neoplasms	2 (3.1%)	1 (2.9%)
Others	2 (3.1%)	5 (14.3%)

Table 4: Past History

History or risk factors	No. of cases (n=100)	Percentage
Hypertension	26	26.0%
Diabetes Mellitus	27	27.0%
Coronary artery disease	14	14.0%
Dyslipidemia	23	23.0%
Tuberculosis	5	5.0%
COPD	7	7.0%
Bronchial asthma	4	4.0%
Epileptic	4	4.0%
Previous CVA	9	9.0
Liver disease	11	11.0%
Chronic kidney disease	6	6.0%

Table 5: Sign or Symptoms

Sign or symptoms	No. of cases (n=100)	Percentage
Headache	53	53.0%
Vomiting	73	73.0%
Fever	36	36.0%
Speech Disturbances	12	12.0%
Convulsions	19	19.0%
Vertigo	14	14.0%
Neck pain	8	8.0%
Neuro Deficit	28	28.0%
Jaundice	16	16.0%
GI Bleed	7	7.0%
Drug overdose	4	4.0%
Smoking	18	18.0%
Alcohol	21	21.0%
Exposed to STD	2	2.0%

Table 6: Association between Etiology and outcome of altered mental status

	Frequency (n=100)	Death (n=37)	Recovery with functional disability (n=21)	Recovery with good recovery (n=42)
Cerebrovascular accidents	36 (36.0%)	15 (40.5%)	11 (52.4%)	10 (23.8%)
Metabolic	31 (31.0%)	12 (32.4%)	4 (19.0%)	15 (35.7%)
Infection	16 (16.0%)	5 (13.5%)	2 (9.5%)	9 (21.4%)
Drug over dosage and poisoning	7 (7.0%)	2 (5.4%)	1 (4.8%)	4 (9.5%)
Intra cranial neoplasms	3 (3.0%)	2 (5.4%)	1 (4.8%)	0 (0.0%)
Others	7 (7.0%)	1 (2.7%)	2 (9.5%)	4 (9.5%)
Total	100	37 (37.0%)	21 (21.0%)	42 (52.0%)

Table 7: Association of outcome with gender of the cases studied

Outcome of altered mental status	Frequency	Male (n=65)	Female (n=35)
Death	37	20 (30.8%)	7 (20.0%)
Recovery with functional disability	21	19 (29.2%)	12 (34.3%)
Recovery with good recovery	42	26 (40.0%)	15 (45.7%)

Table 8: Association of outcome with age of the cases studied

Outcome of altered mental status	Frequency	Male (n=65)	Female (n=35)
Death	37	14 (28.0%)	23 (46.0%)
Recovery with functional disability	21	10 (20.0%)	11 (22.0%)
Recovery with good recovery	42	26 (52.0%)	16 (32.0%)

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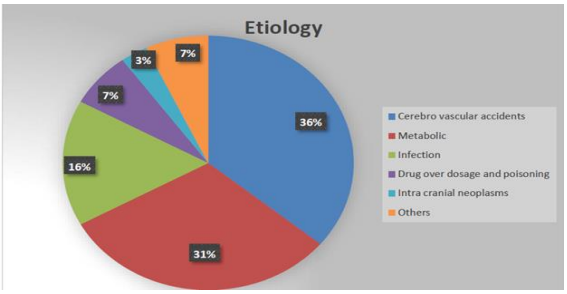

Figure 1: Distribution of the studied cases on the basis of etiology

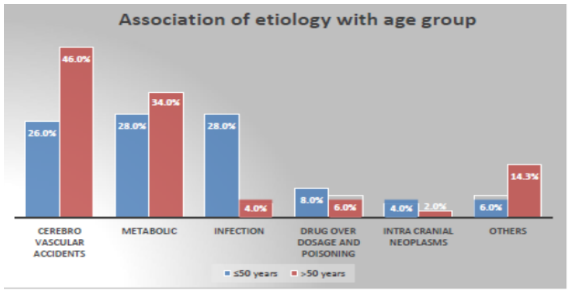

Figure 2: Association of Neurological and non-neurological etiology with age of the cases studied.

DISCUSSION

Altered sensorium comprises a group of clinical symptoms rather than a specific diagnosis, and includes cognitive disorders, attention disorders, arousal disorders, and decreased level of consciousness. Altered sensorium may be found in 4%-10% of Emergency Department patients, this proportion may be higher in special subgroups (such as in the elderly patients).[4]

The aim of the present study was to study the etiology, clinical picture and to determine the outcome of patients with altered sensorium. Malapur RS et al,[5] conducted a retrospective study of the clinical profile of patients presenting with altered sensorium to emergency department and concluded that the most frequently encountered diagnostic categories causing altered sensorium patients were primary CNS disorders, intoxication, organ system dysfunction, and endocrine/metabolic diseases. Sahaja Nomula & Harish Chandra Reddy,[6] conducted a Prospective Clinical Study of the adult patients in altered mental status presenting to emergency without history of head injury and concluded that the patients with altered mental status should be evaluated for infectious, metabolic, neurologic and toxic causes as these are common in the present study.

Out of the studied 100 cases 65 were males and 35 were females. There was no statistical significance in the difference in mortality rate among males and females.

In a similar study Sahaja N & HC Reddy also reported that the males were more (64%) than females (36%). Xiao HY et al,[7] also reported that males were 53.1% and females were 46.9%. Similarly Melka A et al,[8] observed that 60.4% were males and 39.6% were females and 52.3% males and 47.7% females in a study by Kekec Z et al,[9] and 64% males and 36% females in a study done by Jali SN et al.[10] Though there was statistical difference this was mainly in middle age group. Thus, all these studies find that the altered mental status condition is more common in males compared to females though there may not be a significant difference.

Analysis of age group showed that the age group ranged from 14 years to 75 years with mean age 49.12±14.77 years. Most commonly affected age group was 51-60 years which constituted 28.0% of the cases followed by 41-50 years (21.0%) and 61-70 years age group (18%). Age of the patient had correlation with mortality.

They also observed that almost 36.3% patients were <40 years, 22.5% were 40–60 years and 41.2% were >60 years. Kekec Z et al,[9] reported that there were 6.3% patients in 11–14 age range, 5.3% in 15–24, 7.2% in 25–34, 9.6% in 35–44, 14.8% in 46–54, 24.9% in 55–64, and 47.1% patients (were ≥65 years age range.

The mean age of patients with altered sensorium was 58 years. Patients who were above 30 years had one or other risk factors which contributed to the altered sensorium.

Poisoning was observed to be the most important cause in non-neurological factors of altered sensorium (13.16%). Metabolic factors and sepsis with MODS were next in number (9.35% & 8.58% respectively). Leong LB et al,[11] found it to be only 18.3%; only 3.8% by Kekec Z et al, 10% to be infectious by Kanich W et al,[12] and infectious etiology in 24% by Jali SN et al.

Metabolic disturbances as cause of altered mental status was found to be 31.0% in the present study. Similar findings were reported by Sahaja N & Reddy HC4 (30.0), Melka A et al (22.5%) and Jali SN et al (28%). But a lower rate as etiology of AMS was reported by Xiao HY et al (7.9%), Leong LB et al (12%), Kanich W et al (5%) and Kekec Z et al (6.1%).

The overall mortality in the present study was 37% which is higher than that reported by Xiao HY et al (8.1%), Leong LB et al (11%), Kekec Z et al (20.1%), Sahaja Net al (32.0%) and lower than that reported by Melka A et al (60.4%).

In the present study, metabolic and infectious causes of coma, cerebrovascular accidents especially cerebral bleed and intracranial neoplasms were associated with poor outcome. Drug and toxin induced coma showed the best recovery.

Mortality in the infectious etiology group was 23.5%, metabolic was 26.7%, neurologic group was 46.2% and toxins and pharmacologic was 40%. Similar findings were reported by Jali SN et al who found that mortality in the infectious etiology group was 24% and in the metabolic group was 28%.

Presence of any degree of altered sensorium substantially reduces the chance of a good outcome of patients with ischemic stroke and a poor chance of outcome in patients with cerebral hemorrhage.

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Jones and Milliken noted that addition of altered sensorium with hemiplegia increased the mortality from 2 to 41%.62 Oxbury, Greenhall and Grainger KM et al,[13] found that any alteration in consciousness with ischemic stroke predicted at least 30% mortality.

Mortality among patients with metabolic causes of coma was intermediate between those with CVA and other causes (40.5%). Much of the mortality among metabolic causes was due to hepatic coma (32.4%).

Best recovery was noted in those with drug induced coma. So drug induced coma can be taken as an independent predictor of outcome. Sacco RL et al,[14] also found that drug related etiology of coma was an independent predictor of favorable outcome.

We also found that mortality in the patients with age more than 50 years was significantly more (46.0%) compared to mortality in patients with age less than 50 years (28.0%). Similar findings were also reported Sahaja N & Reddy HC who noted the age more than 50 years was significantly more (55.6%) compared to mortality in patients with age less than 50 years (18.8%), and Jali SN et al who found that mortality in patients above 60 years of age was 62.5 years. Xiao HY et al, also reported that the death rate was significantly more in AMS patients of age more than 60 years (10.8%) compared to patients of age less than 60 years (6.9%).

CONCLUSION

- There were 56 males and 44 females. The male to female ratio was 1.9:1.
- The age group ranged from 17 years to 82 years. cases were in the age group of 41 to 70 years.
- There was insignificant distribution of age in both gender group.
- Cerebrovascular accidents stand the most common etiology followed by metabolic and infection was the most common.
- Cerebral infarcts and hemorrhage dominate among cerebrovascular accidents.
- Next common are the metabolic causes among which the most common is hepatic coma.
- Bacterial meningoencephalitis is common among the infectious causes.
- Drug over dosage, poisoning, intracranial neoplasms are less common causes of coma in this study.
- Metabolic and infectious causes of coma, cerebrovascular accidents especially cerebral bleed and intracranial neoplasms were associated with poor outcome.
- Recovery with good recovery and recovery with functional disability rate was higher in female gender.
- Mortality and recovery with functional disability rate was higher in >50 years older patients.

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