

The Clinical Profile of Patients Presenting with Altered Sensorium in Emergency Room

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Abstract: ***Background and methods:** Altered mental status is a common reason for neurologic consultation. Although it is often due to a systemic infection or metabolic derangement, a host of other etiologies can lead to irreversible brain injury if they are not promptly identified and treated. Prospective observational study was performed on 200 patients presenting with altered sensorium in emergency room in Amrita Institute Medical Sciences, Kochi. **Objective:** To study the clinical profile of patients presenting with altered sensorium in emergency room. **Result:** Out of 200 patients, 69% were males and 31% were females. Majority of them were in the age group of 61-80 years. Data analysis shows that the common cause of altered sensorium was electrolyte abnormality, out of them hyponatremia was common. **Conclusion:** The primary cause noted in the study was electrolyte abnormality with 60% and secondary cause was head injury with 30% of patients. Hyponatremia was the most common electrolyte abnormality with 120 patients.*

Keywords: Altered sensorium, emergency department, common cause.

1. Introduction

Altered sensorium is defined as any depression in GCS less than the normal (15). Mental status is a clinical state of emotional and intellectual functioning of the individual. It is mainly due to systemic infection or metabolic derangement and other etiologies can also lead to irreversible brain injury if they are not identified and treated properly. It is a symptom cause a great challenge in the ED.

Testing the mental status is done both for formally and informally in patients' evaluation by emergency physicians¹. It can be subsectioned as delirium, dementia and coma. It is estimated as 10 – 25% of elderly hospitalized patients have delirium at the time of admission in ED²⁻³. Altered sensorium is mainly occurring due to electrolyte abnormality, head injury, hepatic encephalopathy and so on. Laboratory assessment typically includes a CBC, comprehensive metabolic profile, urine analysis, thyroid function test, serum vitamin b12 level, syphilis test^{4,5}. We use Glasgow Coma Scale is the main tool we used to assess the motor sensory condition of patients in ED. Another coma scale FOUR (Full Outline of Unresponsiveness) score has been in used in ICU and has the advantages of assessing simple brain stem functions and respiratory patterns as well as eye and motor responses⁶.

It comprises a group of clinical symptoms rather than a specific diagnosis, and includes cognitive disorders, and decreased level of consciousness. Patients often manifest vague symptoms, thus the diagnosis and treatment are highly challenging. A systematic approach to the patient is important, with an understanding of when to initiate a more advanced and potentially more resource-intensive diagnostic workup. A careful neurologic examination is required in patients with altered mental status to rule out a focal deficit, the presence of which should prompt urgent neuro imaging. A systematic approach to the patient is important, with an understanding of when to initiate a more advanced and potentially more resource-intensive diagnostic workup. A careful neurologic examination is required in patients with altered mental status to rule out a focal deficit, the presence of which should prompt urgent neuro imaging.

2. Materials and Methods

This is a prospective observational study done in 200 patients who were presented with altered sensorium in the Emergency Department of Amrita Institute of Medical Sciences and Research Centre, Kochi. It was done over a period of one-year duration. Parameters includes age, sex, comorbidities, heart rate, respiratory rate, blood sugars. In addition to this, electrolyte levels, differential counts and brain imaging were included in the study.

Study type

The study design was a prospective observational study which consisted of patients with altered sensorium at Amrita Institute of Medical Sciences after fulfilling the inclusion and exclusion criteria.

Study place

Amrita Institute of Medical Sciences, Kochi.

Study size

This is a prospective observational study on altered sensorium. All patients satisfying the inclusion and exclusion criteria were selected for the study over a period of one year. Total number of 200 patients were included in this study.

Inclusion Criteria

Age group greater than 10 years old due to any cause were included in the study.

Exclusion criteria

Age group lesser than 10 years were excluded in the study.

Statistical Analysis

The data collected were compiled using Microsoft Excel. All statistical analyses carried out using IBM Statistical Package for Social Sciences (SPSS version 20). We used frequency and percentage to present categorical variable and median to present numerical variable.

3. Results

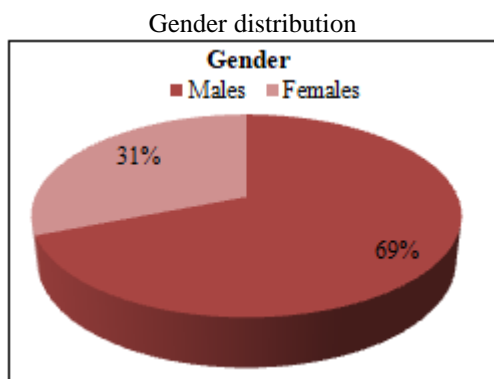


Figure 1: Percentage distribution of subjects based on their gender, shows, that majority of the subjects 69% were males and 31% were females

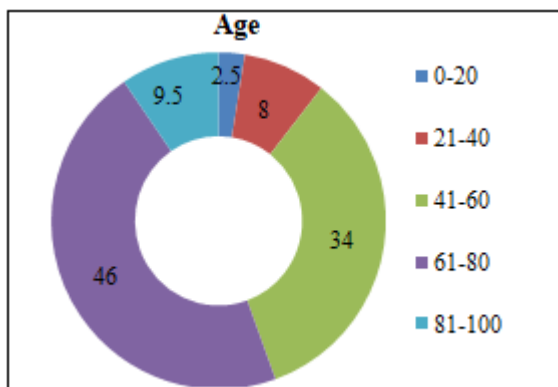


Figure 2: Percentage distribution of subjects based on their age group, and it shows that majority of the subjects (46%) belongs to the age group of 61-80.

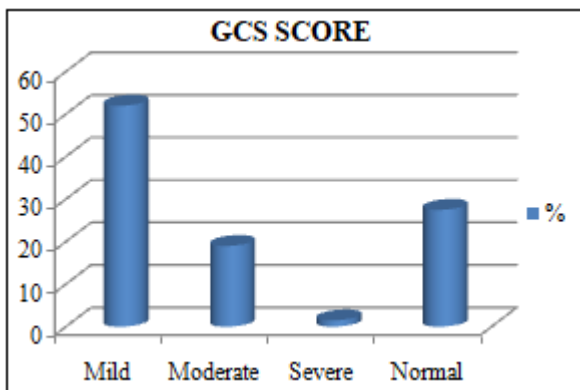


Figure 3: Percentage distribution of subjects based on their glass coma scale, and it shows that majority of them have (52%) mild depression in their GCS level.

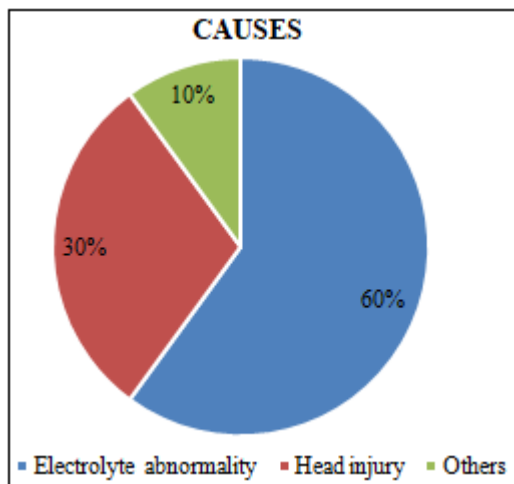


Figure 4: Percentage distribution of subjects based on causes, and it shows that majority of them have (60%) electrolyte abnormality followed by head injury (30%) as their cause of altered sensorium.

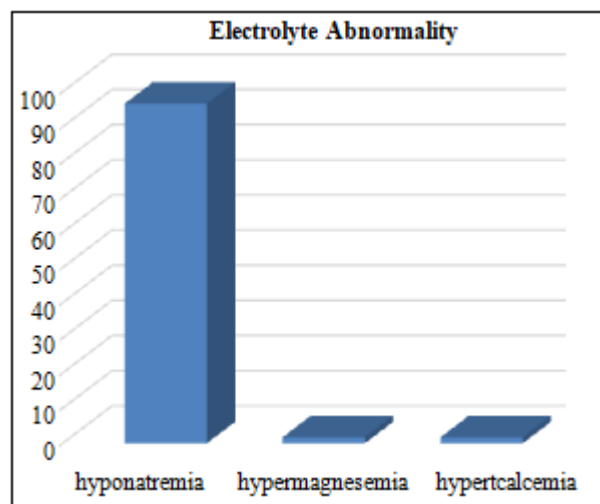


Figure 5: Percentage distribution of subjects based on major electrolyte abnormality, and it shows that majority of them have (96.6%) hyponatremia followed by hypermagnesemia and hypercalcemia (1.7%) respectively.

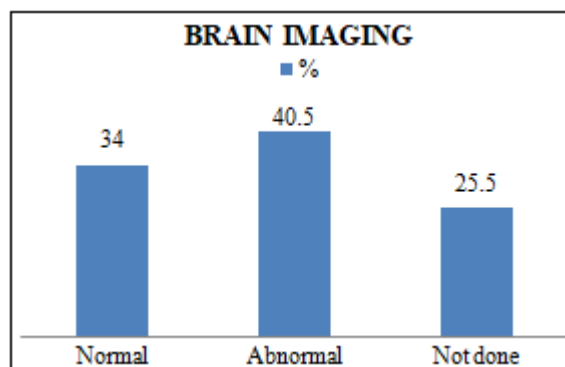


Figure 6: Percentage distribution of subjects based on brain imaging, and it shows that majority of them have (40.5%) abnormality

4. Discussion

In this prospective observational study of 200 patients, Altered Mental Status was evaluated and managed with the treatment protocol of Emergency Medicine Department of

Amrita Institute of Medical Sciences. Each criterion was statistically analyzed and evaluated during the study. Altered Mental Status may be found in 4% -10% of ED patients, this proportion may be higher in special subgroups, such as in elderly patients. The clinical profile of 200 patients, 138 (69%) were males and 62(31%) were females. Of which 92 (46%) patients belongs to the age group of 61-80 and 68(34%) belongs to the age group of 41-60 years. The Glasgow coma scale distribution in this study shows that 104 (52%) patients had mild depression in GCS, 38 (19%) patients had moderate depression in GCS, 3 (1.5%) patients had severe depression in GCS, and 55 (27.5%) patients had normal GCS. Lifesaving procedure, Intubation was done in 21 (10.5%). Blood pressure distribution study shows that 26 (13%) patients had hypotension and 89 (44.5) patients had hypertension. The primary cause noted in the study was electrolyte abnormality with 60% (120) of patients and the secondary cause was head injury with 30% (60) of patients. Hyponatremia was the most common electrolyte abnormality seen in these patients. The other cause was Hyperglycemia, the blood sugar distribution study shows that 84 (42%) had hyperglycemia and 44 (22%) had hypoglycemia. GCS Scoring was done in head injury patients, it shows that most of the patients had moderate depression in sensorium 65% (39) and 18.3% (11) of patients had severe depression in sensorium. Brain imaging was done in 149 patients, out of these 68 (34%) patients had normal images and 81 (40.5%) had abnormal. Subsequent analysis revealed that the causative disease of Altered Mental Status in the elderly group differed from that in the non-elderly group, i.e., metabolic diseases, head injuries and poisoning were often found in young whereas cerebral vascular disease, and organ or system failure were frequently seen in elderly. In acute Altered Mental Status, this pattern of age distribution was similar to Kanich and his colleague's research.⁷

5. Conclusion

A prospective study conducted at emergency department of AIMS, Kochi to identify the most common age group and cause of altered sensorium. And the results of the present study also concluded that altered sensorium were one of the most common presentation among old population attending the emergency room. A systematic analysis of Altered Mental Status patients reveals that the common causes are primary neurological factors, drug and poisoning, system or organ dysfunction, and metabolic and endocrine factors. The etiology of Altered Mental Status is significantly different in various age groups. Based on these epidemiological findings, it would be important to investigate the possible role played by etiological factors like age, sex, blood pressure, heart rate, respiratory rate, Glasgow coma scale, blood sugar level, electrolyte levels, brain imaging etc., in the pathogenesis of Altered Mental Status. In this study electrolyte abnormality were common, among them Hyponatremia were common. Secondary cause of AMS was head injuries. The most common co morbidities were Type II DM. The reversibility of disease and the potentially fatal factors associated with Altered Mental Status require timely assessment and rapid intervention for the potential causes and conditions of this disease.

References

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