

Original research article

Assessment of Altered Mental Status of Patients Admitted to Emergency Department: An Prospective Hospital Based Study

Dr. Anil Gupta

Principal Specialist (M.S., General Surgery), R.B.M. Hospital, Bharatpur, Rajasthan, India.

Corresponding Author: Dr. Anil Gupta, Principal Specialist (M.S., General Surgery), R.B.M. Hospital, Bharatpur, Rajasthan, India.

ABSTRACT

Background: Altered mental status (AMS) is broadly defined as a change in cognitive function or level of consciousness. Little contemporary literature exists that investigates the issue of AMS in the emergency department (ED). Hence; under the light of above mentioned data, present study was planned to assess the altered mental status of patients admitted to emergency department.

Materials & Methods: A total of 125 patients with AMS were included in the present study who was admitted to the emergency department. In relation to the clinical signs and symptoms of all the patients with which the patients presented to the medical emergency department, routine investigations were performed to find the etiologic factor responsible for occurrence of AMS. All the results were analysed by SPSS software.

Results: In 28 percent of the patients, the AMS was due to cerebrovascular accidents, which included ischemia and hemorrhage. Infective cause was responsible for occurrence of 26.4 percent of the patients. Metabolic causes were responsible for occurrence of 21.6 percent of the cases. Non- significant results were obtained while correlating the distribution of patients with AMS according to etiologic diagnosis.

Conclusion: Emergency doctors should have adequate knowledge of the etiologic factors responsible for the causation of AMS so that prompt treatment could be started.

Key words: Altered Mental Status, Emergency Department, Etiology.

INTRODUCTION

Coronary Altered mental status (AMS) is broadly defined as a change in cognitive function or level of consciousness. The differential diagnosis for altered mental status is broad and includes life-threatening yet treatable conditions; therefore, a systematic approach to the patient is necessary.¹ Altered mental status is a broadly inclusive term used to describe a patient with a change in either the content of consciousness or the level of arousal.²⁻⁴

It is important to obtain detailed medication history, including over the counter and herbal supplements, to rule out drug interaction as a cause of altered mental status. Consider using a diagnostic tool for evaluation of mental status, such as the Mini-Mental Status Exam (MMSE), the Quick Confusion Scale, or the Confusion Assessment Method (CAM). Altered Mental Status involves abnormalities of reticular activating system and its association to different centres of brain. Knowledge of which areas of this spectrum are affected, guides both the workup

and the diagnosis.⁵⁻⁷ AMS is a common chief complaint in the emergency department (ED), as well as a frequent concurrent issue in patients presenting with other primary presentations. AMS may be found in 4% to 10% of ED patients. Certain patient subsets have higher rates of altered mentation, such as the elderly; dementias and other delirious states are seen in up to 30% of the ED elderly. These changes may be sudden or gradual in onset, transient, fluctuating, or sustained in progression and acute or chronic in duration. AMS is a common presentation in the ED yet is a significant challenge to the emergency physician (EP) in that altered mentation does not suggest a specific diagnosis but rather a manifestation of a wide range of medical syndromes. Little contemporary literature exists that investigates the issue of AMS in the ED.⁴⁻⁶ Hence; under the light of above mentioned data, present study was planned to assess the altered mental status of patients admitted to emergency department.

MATERIALS & METHODS

The current research was conducted in the Department of General Surgery, R.B.M. Hospital, Bharatpur, Rajasthan (India) and it included assessment of altered mental status of patients admitted to emergency department of the medical institute. Written consent was obtained from all the patients/attendants after explaining in detail the entire research protocol. A total of 125 patients with AMS were included in the present study who was admitted to the emergency department.

Inclusion Criteria

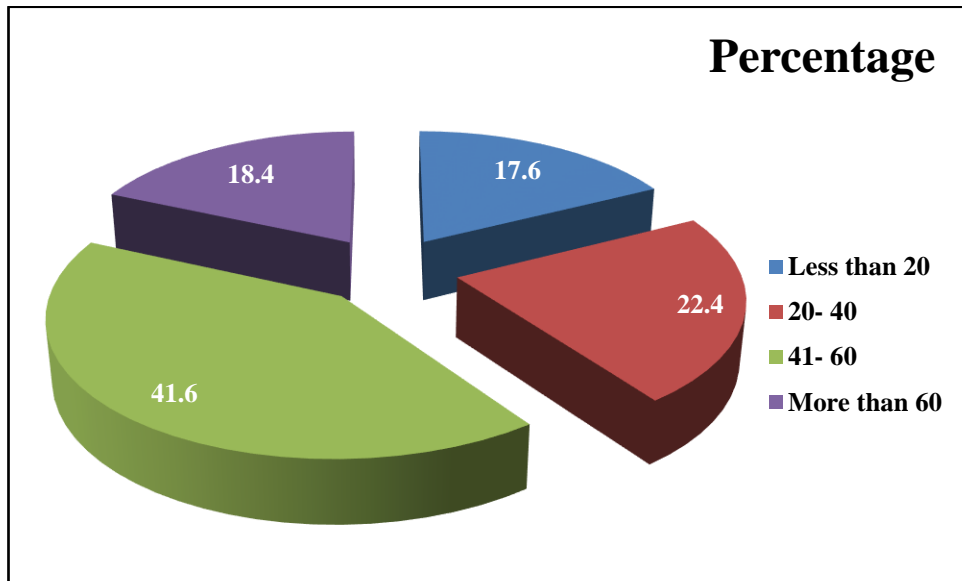
1. Glasgow Coma Scale ≥ 3 but < 15
2. More than 18 years of age
3. Clinical symptoms lasting for less than 1 week

In relation to the clinical signs and symptoms of all the patients with which the patients presented to the medical emergency department, routine investigations were performed to find the etiologic factor responsible for occurrence of AMS. All the results were analysed by SPSS software. Chi-square test was used for assessment of level of significance.

RESULTS

17.6 percent of the patients with AMS belonged to the age group of less than 20 years. 22.4 percent of the patients belonged to the age group of 20 to 40 years. 41.6 percent of the patients belonged to the age group of 41 to 60 years. 18.4 percent of the patients belonged to the age group of more than 60 years. 53.6 percent of the patients of the present study were males while the remaining 46.4 percent of the patients were females. In 28 percent of the patients, the AMS was due to cerebrovascular accidents, which included ischemia and hemorrhage. Infective cause was responsible for occurrence of 26.4 percent of the patients. Infective causes included septic encephalopathy, tuberculoma brain and Meningoencephalitis. Metabolic causes were responsible for occurrence of 21.6 percent of the cases. Metabolic causes included Hepatic encephalopathy, Uremic encephalopathy, Hypoglycaemia and Carbon dioxide narcosis. Non- significant results were obtained while correlating the distribution of patients with AMS according to etiologic diagnosis.

Graph 1: Distribution of subjects according to age group



Graph 2: Distribution of subjects according to gender

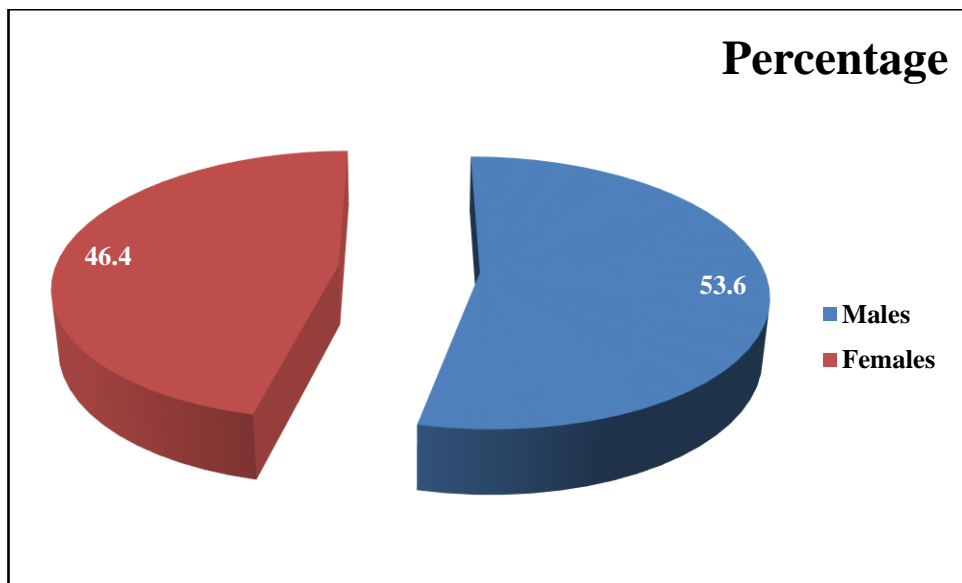


Table 1: Categorization of diagnosis into various categories

Diagnosis	Number of patients	Percentage	p- value
Cerebrovascular accidents	35	28	0.25
Metabolic	27	21.6	
Infective	33	26.4	
Drug intoxication	15	12	
Others	15	12	
Total	125	100	

DISCUSSION

Common causes of AMS in the ED patient include drugs (illicit and medicinal), infections, metabolic disarray, trauma, neoplasms, stroke, convulsion, and a host of organ system dysfunctions. Regardless of the specific cause, the EP will encounter the patient with AMS resulting from either a direct central nervous system (CNS) process (stroke, head trauma, or mass lesion) or a secondary event with neurologic impact such as sepsis, cardiogenic shock, or an intoxication.⁸

In the present study, 17.6 percent of the patients with AMS belonged to the age group of less than 20 years. 22.4 percent of the patients belonged to the age group of 20 to 40 years. 41.6 percent of the patients belonged to the age group of 41 to 60 years. 18.4 percent of the patients belonged to the age group of more than 60 years. Sanello A et al (2018) performed a literature review of the current evidence in the prehospital treatment of a patient with altered mental status (AMS) and augmented this review with guidelines from various national and international societies to create our evidence-based recommendations. They then compared the AMS protocols of each of the 33 emergency medical services (EMS) agencies for consistency with these recommendations. The specific protocol components that they analyzed were patient assessment, point-of-care tests, supplemental oxygen, use of standardized scoring, evaluating for causes of AMS, blood glucose evaluation, toxicological treatment, and pediatric evaluation and management. Protocols across 33 EMS agencies in California varied widely. All protocols call for a blood glucose check, 21 (64%) suggest treating adults at <60mg/dL, and half allow for the use of dextrose 10%. All the protocols recommend naloxone for signs of opioid overdose, but only 13 (39%) give specific parameters. Half the agencies (52%) recommend considering other toxicological causes of AMS, often by using the mnemonic AEIOU TIPS. Eight (24%) recommend a 12-lead electrocardiogram; others simply suggest cardiac monitoring. Fourteen (42%) advise supplemental oxygen as needed; only seven (21%) give specific parameters. In terms of considering various etiologies of AMS, 25 (76%) give instructions to consider trauma, 20 (61%) to consider stroke, and 18 (55%) to consider seizure. Twenty-three (70%) of the agencies have separate pediatric AMS protocols; others include pediatric considerations within the adult protocol. Protocols for patients with AMS vary widely across the State of California. The evidence-based recommendations that they presented for the prehospital diagnosis and treatment of this condition may be useful for EMS medical directors tasked with creating and revising these protocols.⁹

In the present study, 53.6 percent of the patients of the present study were males while the remaining 46.4 percent of the patients were females. In 28 percent of the patients, the AMS was due to cerebrovascular accidents, which included ischemia and hemorrhage. Infective cause was responsible for occurrence of 26.4 percent of the patients. Infective causes included septic encephalopathy, tuberculoma brain and Meningoencephalitis. Metabolic causes were responsible for occurrence of 21.6 percent of the cases. Shin S et al (2018) determined the clinical factors associated with positive CT findings. Patients with acute AMS selected from an emergency department-based registry were retrospectively evaluated. Patients with non-traumatic and non-communicable diseases on initial presentation and with Glasgow Coma Scale scores of <15 were included in the study. Among the 367 brain CT results of patients with AMS during the study period, 146 (39.8%) were positive. In a multivariate analysis, the presence of focal neurologic deficit (odds ratio [OR], 132.6; 95% confidence interval [CI], 37.8 to 464.6), C-reactive protein level <2 mg/dL (OR, 3.9; 95% CI, 1.4 to 10.6), and Glasgow Coma Scale score <9 (OR, 2.4; 95% CI, 1.2 to 4.8) were significantly associated with positive brain

CT results. The presence of focal neurologic deficit, initial Glasgow Coma Scale score of <9, and initial C-reactive protein levels of <2 mg/dL can facilitate the selection of brain CT to diagnose patients with acute AMS in the emergency department.⁴²In the present study, a total of 125 patients were evaluated. Majority of the patients of the present study belonged to the age group of 41 to 60 years. 53.6 percent patients of the present study were males.¹⁰

In the present study, metabolic causes included Hepatic encephalopathy, Uremic encephalopathy, Hypoglycaemia and Carbon dioxide narcosis. Non-significant results were obtained while correlating the distribution of patients with AMS according to etiologic diagnosis. Benbadis SR et al determined the frequency with which an acute confusional state is caused by a stroke and to evaluate the usefulness of obtaining computed tomography scans. The authors reviewed 127 neurology consultations requested for patients presenting with acute and apparently isolated mental status changes. The mean age was 62 years. Nine (7%) of the 127 patients were thought to have suffered mental status changes as a result of an acute stroke: one subarachnoid hemorrhage, and eight ischemic strokes. There was no intracerebral hemorrhage. The locations of the infarcts were: right frontoparietal (four patients), bilateral occipital (two patients), bilateral frontal (two patients), and right pontine (one patient, for whom the causality of the stroke was uncertain). Of those nine stroke patients presenting with isolated mental symptoms, six (66%) had some focal abnormality on neurologic examination. Only three (2.7%) of the 109 patients with no focal findings were ultimately diagnosed as having strokes, and one of these had a subarachnoid hemorrhage. Stroke was a relatively rare cause of acute confusional syndrome. The neurologic examination had a very high negative predictive value (97%) and was reliable in selecting patients who should undergo an imaging study.¹¹

CONCLUSION

Under the light of above obtained data, it can be concluded that emergency doctors should have adequate knowledge of the etiologic factors responsible for the causation of AMS so that prompt treatment could be started.

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