

Acute Confusional State: A Common Clinical Condition with Versatile Variability-A Prospective Study

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Abstract:

Acute confusional state account for a substantial proportion of admissions to emergency wards. As the etiology of acute confusional state are numerous and presentation also variable, so many time create confusion regarding the actual diagnosis and thus delay the prompt management which may result in fatal outcome.

The objectives of this study was to explore the etiology and age & sex distribution of acute confusional state among hospitalized patients.

In this prospective hospital based study, 345 adult patients presenting with acute confusional state were collected from medicine unit Dhaka Medical College Hospital during the period of July'08 to October'08. Patients known to have previous history of stroke, chronic dementing neurological disease were excluded from the study.

This study revealed that, patients with acute confusional state constitute about 21% of total hospital admission in medicine wards. Peak incidence of acute confusional state was found to be in two age groups: one in 2nd to 3rd decades and another in 5th to 6th decades. The first peak was due to acute poisoning, CNS infection and hepatic encephalopathy; and the second peak was due to stroke, electrolyte imbalance, systemic infection and disturbance of glucose metabolism. This study also showed male preponderance over female and metabolic causes higher than the structural causes. Stroke comprised the highest percentage (25%) of cases in this series.

Keyword: acute confusional state, versatile variability

Introduction:

Confusional states and coma are among the most common problems in general medicine. They account for a substantial proportion of admissions to emergency wards and are a frequent cause of distress on all hospital services.¹

Acute confusional state is a neuropsychiatric syndrome which is difficult to exactly define but involves abnormalities of thought, perception and levels of awareness. It occurs acutely or subacutely and symptoms fluctuate. It is very common, especially in the elderly and many of these patients subsequently do not return to their baseline function and some even require institutionalization.

Confusion and delirium always signify a disorder of the nervous system. They may be the major manifestation of a head injury; a seizure; drug toxicity (or drug withdrawal); a metabolic disorder resulting from hepatic, renal, pulmonary or cardiac failure; a systemic infection; meningitis or encephalitis; or a chronic dementing disease.¹

As the etiology of acute confusional state are numerous and presentation also variable, so many time create confusion

regarding the actual diagnosis and thus delay the prompt management which may result in fatal outcome. Acute confusional state is thus associated with high rate of mortality and morbidity, specially if undiagnosed.

Therefore an awareness regarding the common causes of acute confusional state is essential for all level of medical practitioner for its early diagnosis, proper treatment and prevention as well.

The aim of the study is to explore the etiology and age & sex distribution of acute confusional state among hospitalized patients.

Methodology:

A prospective study was conducted at DMCH over the period of four months from July 08 to October 08. A total number of 345 out of 1649 cases with age ranging from 16 to 93 years were purposefully collected for conducting the study.

Patients were assessed on the basis of the definition of acute confusional state given by the Diagnostic and Statistical

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Manual, 4th Edition (DSM-IV) of American Psychiatric Association (APA) and level of consciousness was assessed according to Glasgow Coma Scale. Detailed neurological and systemic examination was done. All the relevant investigations like complete blood count, random blood sugar, blood urea, serum creatinine, serum electrolytes, prothrombin time, urine RE, chest X-Ray were done immediately as per clinical context. Other important investigations like lumbar puncture, CT scan head, MRI, Toxicologic screening etc were done where indicated. Patients admitted with some of the following features of acute confusional state in medicine unit in Dhaka Medical college hospital were included in the study -

- Usually acute or subacute presentation (onset within 24-72 hours).
- Fluctuating course.
- Consciousness is clouded.
- Disorientation.
- Memory deficits - predominantly poor short-term memory.
- Abnormalities of sleep-wake cycle including sleeping in the day.
- Abnormalities of perception e.g. hallucinations or illusions.
- Agitation, Emotional lability.
- Psychotic ideas are common but of short duration and of simple content.
- Neurological signs -e.g. unsteady gait and tremor.

Following patients were excluded from the study:

- o Patients known to have previous history of stroke, chronic degenerative neurological disease where cognitive function is impaired will be excluded from this study.
- o Patients admitted in departments other than medicine will not be enrolled in this study.

All the necessary information was collected in a standardized data sheet by interviewing patient’s attendants and from hospital records. Finally all the necessary data were processed, analyzed by using SPSS program, presented in tables and diagrams and conclusion was drawn.

Observations and Results:

Table-I

Proportion of patients admitted with acute confusional state among the total admitted patients:

	Total No. of admitted patients	No. of patients with acute onfusional state	Percentage (%)
Male Ward	1112	239	21.49
Female Ward	537	106	19.74
Total	1649	345	20.92

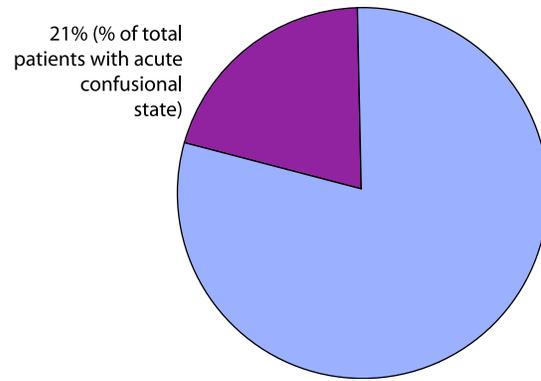


Fig.-1: *Proportion of patients admitted with acute confusional state among the total admitted patients (n=345/1649)*

Table-II

Aetiological classification of study population presented with acute confusional state (n=345):

Aetiology	Total	Percentage %
Stroke	86	24.92
Acute poisoning	76	22.03
Hepatic encephalopathy	41	11.88
Electrolyte imbalance	32	9.28
CNS infection	25	7.24
Systemic infection	14	4.05
Hypoxia	15	4.35
Disturbance of glucose metabolism	13	3.77
Uraemia	5	1.45
Unknown aetiology	24	6.96
Multiple aetiology	7	2.03
Other	7	2.03
Total	345	100%

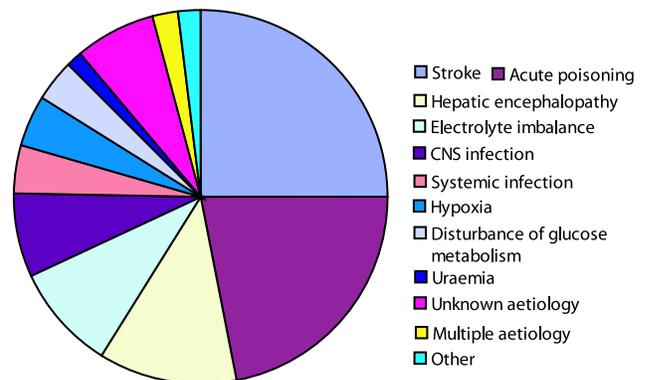


Fig.-2: *Proportion of different aetiology of acute confusional state:*

Table-III

Distribution of study population according to age group (n=345):

Age group (years)	Total no. of patients	Percentage
16-25	77	22.32
26-35	48	13.91
36-45	38	11.01
46-55	46	13.33
56-65	63	18.26
66-75	52	15.07
76-85	16	4.64
>85	5	1.44
Total	345	100%

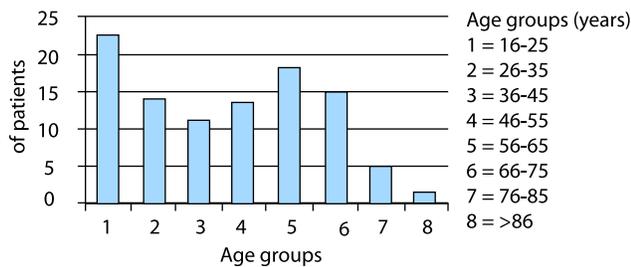


Fig.-3: Age distribution of study population

Table-IV

Distribution of study population according to sex (n=345)

Aetiology	Male	Percentage	Female	Percentage
	(n=239)		(n=106)	
Stroke	57	23.75	29	27
Acute poisoning	52	21.67	24	22.43
Hepatic encephalopathy	30	12.5	11	10.28
Electrolyte imbalance	22	9.16	10	9.34
CNS infection	17	7.08	8	7.47
Systemic infection	10	4.16	4	3.73
Hypoxia	14	5.83	1	1
Disturbance of glucose metabolism	9	3.75	4	3.74
Uraemia	4	1.67	1	1
Unknown aetiology	15	6.25	9	8.4
Multiple aetiology	5	2.08	2	1.87
Other	4	1.67	3	2.8
Total	239	100%	106	100%

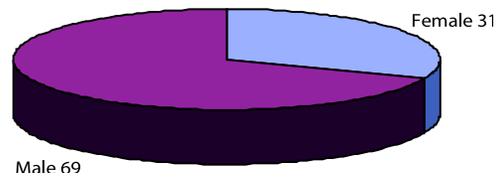


Fig.-4: Sex distribution of study population (n=345)

Table-V

Broad aetiological classification of acute confusional state of study population (n=345)

Types	No. of patients	Percentage (%)
Metabolic cause (including poisoning)	182	52.75
Organic cause	132	38.26
Unknown cause	24	6.95
Multiple cause	7	2.02
Total	345	100%

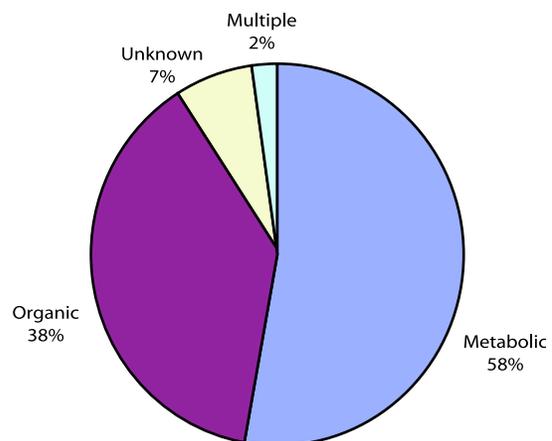


Fig.-5: Broad aetiological classification of acute confusional state

Discussion:

During the period of July, 2008 to October, 2008 a total number of 1649 patients were admitted in both male and female wards, among them patient with acute confusional state was 345. It is 21 percent of total admission (Table-I, Fig-1). It is almost consistent with international data, which says, acute confusional state occurs in about 15-20% of all general admissions to hospital.²

Regarding the aetiology of different cases of acute confusional state, (Table-II, Fig-2) stroke topped the list (25%). It was followed by acute poisoning (22%), hepatic encephalopathy (12%), electrolyte imbalance (9.28%), CNS

infection (7.24%), unknown (7%), systemic infection (4%), disorders of glucose metabolism (4%), other (2%), multiple aetiology (2%) and uraemia (1.45%). It is interesting to note that despite good clinical history, examination and laboratory investigations exact aetiology of acute confusional state of a good number of patients remained unknown, constituting 7% of total study population.

There was considerable variation in the age distribution (Table-III, Fig-3) of the study population. Age range was 16-93 years. Majority of the patients were in the age group of 16-25 years (22.32%). Next common age group was 56-65 years (18.26%). This finding reflects one of the important risk factors of acute confusional state which is extremes of age. Though from the international studies, it was thought that, acute confusional state is predominantly a state of the elderly, but in this current study, younger age group constituted the highest percentage. It may be due to the large number of acute poisoning cases in the current study; 16-25 years age group is the principal victim of the acute poisoning. Another reason may be total lifespan which is less in our population than in western population.

Acute confusional state due to stroke, electrolyte imbalance (e.g.-hyponatraemia), systemic infection (e.g.-pneumonia, UTI) was common in the older age group. On the other hand, acute poisoning, CNS infection, hepatic encephalopathy were common aetiology of younger age group.

Regarding gender distribution it was found that among total 345 patients with acute confusional state, number of male patients was 239, which constitute 69.27% and number of female patient was 106, constituting 31% (Fig-4). This finding is similar to a study of Higashi et al, which showed the percentage of male was 68.18% and female was 31.82%.³ This finding reflects that male sex is an independent risk factor for acute confusional state. However, as in our hospital, total number of bed allocated for male patient is more than female patient, so such a high percentage of male patient in comparison to female counterpart may not be the true reflection of the scenario.

In this study, 53% of patients with acute confusional state was due to metabolic causes and 38% was due to organic causes (Table-V, Fig-5). Unknown cause and multiple cause constitute the remainder 9%. This finding is consistent with a study by Plum & Posner, who showed 65.2% cases due to metabolic and 34.8% due to organic causes. Another study by Faheemur Rehman Khan et al showed that neurological lesions and metabolic encephalopathies accounted for about 70% of the cases, followed by infections (10%) and drugs/toxins (8%).⁵

In this study, the most frequent cause of acute confusional state is found to be stroke, comprising 25% of total study population (Table-I). This is similar with an international study.^{2,3} In the study by Levy et al 36.2% of non traumatic acute confusional patients were due to stroke. Present study is almost similar with that study.⁷

Next to stroke the second most common cause of acute confusional state was found to be acute poisoning, comprising 22% of total cases (Table-II) and 42% of metabolic cases. Plum and Posner showed 29.8% altered consciousness were due to drug poisoning and 37.5% of altered consciousness of metabolic causes was due to acute poisoning.⁴ The poisonous substances used for poisoning were mostly unknown (47.36%), followed by insecticides (39.47%) and sedatives/hypnotics (13.15%). The patients of unknown poisoning are mainly travelers. They are victims of street poisoning, which are usually strong hypnotics or mixture of two or more drug that can induce deep sedation. No case of alcohol intoxication was found in this study which may be due to limited number of study case or majority of study population belonging to poor socio-economic status. However alcoholism is not very uncommon in our country now-a-days. Limitations of the study are: the study population is small and total time span is also limited.

Conclusion:

The study was designed to work out the important aetiology and epidemiology of acute confusional state in our population, so as to help in pointing out important and common causes with age and sex distribution of acute confusional state in our set up, thus helping to keep in mind different diseases while we are confronted with a patient of acute confusional state. This prospective hospital based study with a limited number of study population may not reflect the exact situation of the condition in the community, but its nearness to the reality cannot be underestimated.

Age is an important predictor of the aetiology of acute confusional state. In older age group acute confusional state is mostly due to stroke, electrolytic imbalance, systemic infection or disturbance of glucose metabolism. In younger age group, acute poisoning, CNS infection or hepatic encephalopathy are the common aetiology of acute confusional state. It is important to note that, many causes of altered consciousness are completely reversible with prompt diagnosis and proper management, like- infections & metabolic abnormalities. This finding emphasize the great importance of early accurate diagnosis of acute confusional state, as correct diagnosis can lead to judicious management and save many valuable lives.

The study also highlighted that the aetiology of a significant number of cases of acute confusional state remained unknown. So in conclusion, it needs to be mentioned that, our clinical and investigation facilities must be improved a lot to solve the unresolved factors of the present study, which would improve the morbidity and mortality from acute confusional state.

Conflict of Interest : None

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