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Original Research Article

A Clinical Study of Acute Confusional State in Elderly with Special Reference to the Etiological Profile

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Abstract

Introduction: Acute confusional state (delirium) is a common neuropsychiatric syndrome in hospitalized elderly and is associated with increased morbidity, mortality, length of hospital stay and healthcare expenditure. However, studies in Northeast India are scarce despite being clinically important.

Aims: (1). To study clinical profile of elderly patients presenting with acute confusional state. **(**2). To find out the etiological and precipitating factors of acute confusional state. **(**3). To evaluate short term outcome of geriatric patients with acute confusional state.

Materials and Methods: A hospital based observational study was conducted in Department of Medicine, Gauhati Medical College and Hospital during the period from July 2016 to June 2017. We included 80 patients, aged ≥ 60 years, who met the Confusion Assessment Method (CAM) criteria for an acute confusional state. We evaluated demographic variables, comorbidities, predisposing factors, precipitating causes, distribution of subtypes and outcomes.

Results: Participants' mean age was 70.81±8.82 years. The study population consisted of 60% males. Hypoactive delirium was the most frequent subtype (43.8%). The most common comorbidities were hypertension (73.7%) and diabetes mellitus (56.2%). The main predisposing factors were hypoalbuminemia (66.2%), frailty (60%) and poor activities of daily living (58.7%). The most frequent precipitating factors were infection (67.5%), hyponatremia (42.5%) and catheter/tube insertion (35%). The most common infectious etiology was urinary tract infection (31.2%). Most patients had several predisposing and precipitating factors at the same time.

Conclusion: In older patients, there are multiple causes of acute confusional state, of which infection and metabolic disturbances are important. Early recognition of vulnerable patients and correction of reversible causes may reduce morbidity and improve clinical outcomes.

Keywords: Acute Confusional State, Delirium, Elderly, Infection, Hypoalbuminemia, Frailty.

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Introduction

Acute confusional state is common neuropsychiatric syndrome, characterized by acute onset of fluctuating disturbance of attention, awareness, cognition and perception. It is common in elderly hospitalized patients. It is associated with poor prognosis, prolonged hospitalization, institutionalization and increased mortality [1]. The syndrome has been historically described with various terminologies such as delirium, acute brain syndrome, acute cerebral insufficiency, and toxic-metabolic encephalopathy [2].

The Diagnostic and Statistical Manual of Mental Disorders (DSM) standardized delirium as a separate clinical entity. According to the DSM criteria, an acute confusional state is defined as an acute onset of fluctuating cognitive dysfunction with altered consciousness and evidence of an underlying medical or toxic etiology [3]. Older people are particularly vulnerable because of age-related decreases in cerebral reserve, co-morbid chronic diseases, sensory impairment, malnutrition, frailty and polypharmacy.

The pathophysiology of delirium is incompletely understood. Proposed mechanisms include neurotransmitter imbalance, inflammatory cytokine activation, oxidative stress, cortisol excess and neuronal network dysfunction [4]. Cholinergic deficiency and dopaminergic excess have been widely invoked in delirium. Systemic inflammatory responses due to infection and surgical procedures

may worsen further cerebral dysfunction [5]. Acute confusional state is now considered as one of the most important geriatric emergencies. Delirium is linked to prolonged hospital stay, risk of falls, pressure ulcers, functional decline and long term cognitive impairment and adds significantly to the health care burden [6]. Research has demonstrated that older patients with delirium may have hospital stays twice as long as patients without delirium [7].

The condition is often underdiagnosed, particularly the hypoactive subtype, as the symptoms may overlap with dementia or depression [8]. Thus, timely identification and management are critical. Delirium is caused by the interaction of predisposing factors such as advanced age, dementia, frailty, sensory impairment and poor nutritional status with precipitating factors such as infection, electrolyte disturbances, surgery, medications and environmental stressors [9].

India is experiencing rapid demographic transition with increase in life expectancy and growth of geriatric population. Delirium is a major public health problem, as the elderly represent a large proportion of hospital admissions [10].

Although important, data on etiological profile and clinical characteristics of acute confusional state from Northeast India are scarce.

Hence, the present study was undertaken to evaluate the clinical profile, etiological spectrum and precipitating factors associated with acute confusional state in elderly patients admitted in a tertiary care hospital in Assam.

Aims and Objectives

1. To study the clinical profile of geriatric patients presenting with acute confusional state.
2. To determine the possible etiologic factors associated with acute confusional state.
3. To assess the short-term outcome in elderly patients with acute confusional state.

Materials and Methods

Study Design: Hospital-based observational study.

Study Area: The study was conducted at Gauhati Medical College and Hospital.

Study Duration: July 2016 to June 2017.

Sample Size: A total of 80 patients fulfilling inclusion criteria were enrolled.

Inclusion Criteria

1. Patients aged ≥60 years.
2. Patients fulfilling Confusion Assessment Method (CAM) criteria.
3. Acute confusional state of less than 7 days duration.

Exclusion Criteria

1. Known dementia.
2. Pre-existing psychiatric illness.
3. Recurrent seizure disorder.
4. Pre-existing neurological deficit.
5. Duration of symptoms >7 days.

Methodology

Patients admitted to medical wards were screened using CAM criteria. Detailed clinical history, physical examination, and laboratory investigations were performed. Data regarding comorbidities, subtype of delirium, precipitating and predisposing factors were recorded.

Statistical Analysis: Data were compiled and analyzed using descriptive statistics. Results were expressed as frequency, percentage, mean, and standard deviation where appropriate.

Results

Demographic Characteristics

Age Distribution: The majority of patients belonged to the 60–69 years age group (47.5%), followed by 70–79 years (32.5%). Patients aged ≥80 years constituted 20% of the study population. The mean age was 70.81±8.82 years.

Table 1: Age Distribution

Age Group (Years)	Number of Patients	Percentage
60–69	38	47.5
70–79	26	32.5
≥80	16	20
Total	80	100

The predominance of younger elderly patients may reflect increased hospital utilization in this age group. However, the substantial proportion of very elderly patients highlights the rising burden of delirium with advancing age.

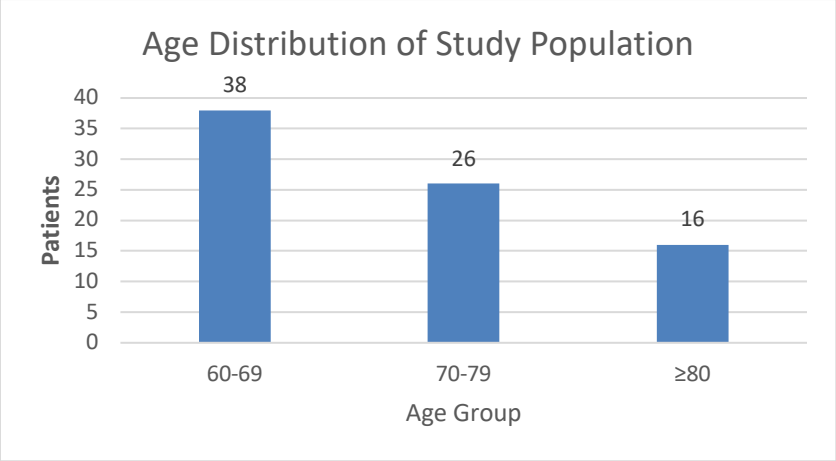

Figure 1: Age Distribution of Study Population

Gender Distribution: Males constituted 60% of the study population, while females constituted 40%, with a male-to-female ratio of 1.5:1.

Table 2: Gender Distribution

Gender	Number	Percentage
Male	48	60
Female	32	40
Total	80	100

The male predominance observed in this study may be attributed to greater prevalence of comorbid illnesses, smoking, alcohol use, and healthcare-seeking patterns among elderly men.

Educational Status: Most patients had high-school level education (30%), followed by primary education (22.5%). Only 10% had no formal education.

Table 3: Educational Status

Educational Status	Number	Percentage
No formal education	8	10
Primary	18	22.5
Secondary	14	17.5
High school	24	30
College	16	20

Lower educational attainment may contribute to reduced cognitive reserve, increasing susceptibility to delirium.

Functional Status: Seventy percent of patients were dependent for more than two activities of daily living (ADL), indicating significant baseline functional impairment.

Functional Status and Comorbidity

Table 4: Functional Status

ADL Score	Number	Percentage
0	8	10
1	14	17.5
2	14	17.5
3	11	13.75
4	9	11.25
5	16	20
6	8	10

Functional dependence reflects frailty and reduced physiological reserve, both of which predispose elderly patients to delirium.

Comorbid Conditions: Hypertension was the commonest comorbidity (73.7%), followed by diabetes mellitus (56.2%), renal failure (25%), ischemic heart disease (25%), and congestive cardiac failure (22.5%).

Table 5: Comorbid Conditions

Comorbidity	Number	Percentage
Hypertension	59	73.7
Diabetes Mellitus	45	56.2
Renal Failure	20	25
Ischemic Heart Disease	20	25
CCF	18	22.5
COPD	17	21.2
CVA	11	13.7
CLD	9	11.2

The high burden of comorbid disease highlights the complexity of managing elderly patients with delirium.

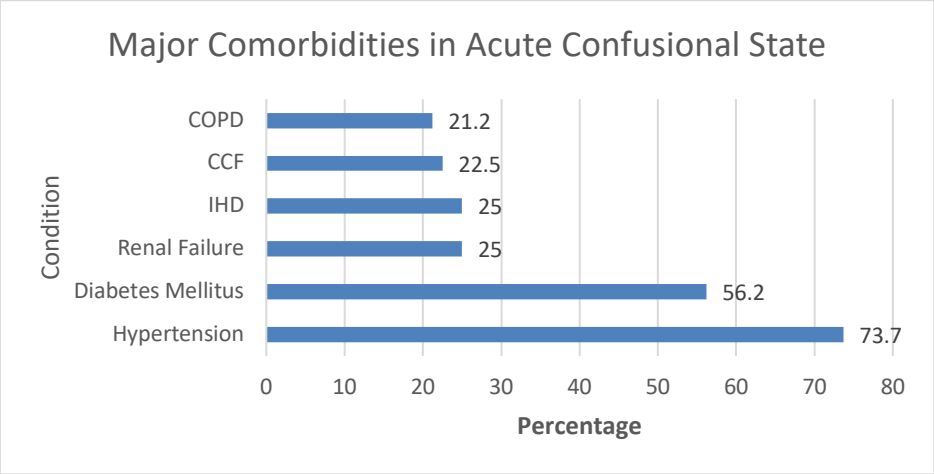

Figure 2: Characteristics of Acute Confusional State

Onset: Prevalent delirium (present before admission) was observed in 66.3% of patients, while incident delirium during hospitalization occurred in 33.7%.

Table 6: Onset of Acute Confusional State

Onset	Number	Percentage
Prior to admission	53	66.3
After admission	27	33.7

This finding emphasizes that delirium frequently develops before hospitalization and may represent severe systemic illness at presentation.

Clinical Subtypes: Hypoactive delirium was the commonest subtype (43.8%), followed by mixed (32.5%) and hyperactive (23.7%) forms.

Table 7: Delirium Subtypes

Subtype	Number	Percentage
Hypoactive	35	43.8
Mixed	26	32.5
Hyperactive	19	23.7

The predominance of hypoactive delirium is clinically significant because this subtype is often under-recognized and associated with poorer outcomes.

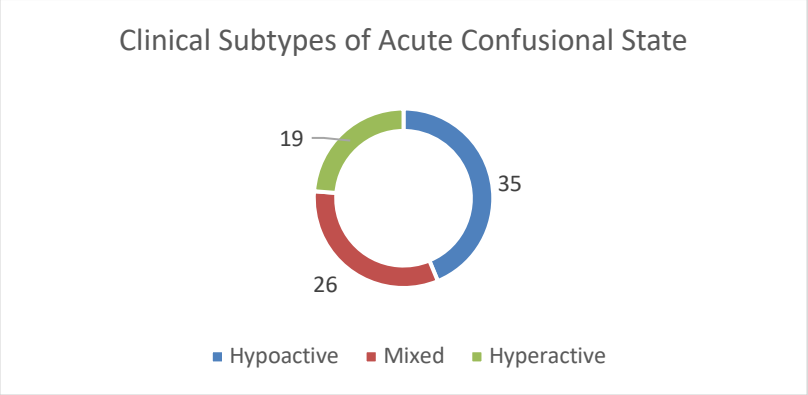

Figure 3: Etiological Profile

Predisposing Factors: Hypoalbuminemia was the commonest predisposing factor (66.2%), followed by frailty (60%), poor ADL status (58.7%), visual impairment (42.5%), and polypharmacy (42.5%).

Table 8: Predisposing Factors

Predisposing Factor	Number	Percentage
Hypoalbuminemia	53	66.2
Frailty	48	60
Poor ADL	47	58.7
Visual Impairment	34	42.5
Polypharmacy	34	42.5
Hearing Impairment	33	41.2
Renal Disease	20	25

Hypoalbuminemia may reflect chronic malnutrition and systemic inflammation, both of which impair cerebral metabolic reserve.

Precipitating Factors: Infection was the commonest precipitating factor (67.5%), followed by hyponatremia (42.5%), catheter/tube insertion (35%), and addition of multiple drugs (27.5%).

Table 9: Precipitating Factors

Precipitating Factor	Number	Percentage
Infection	54	67.5
Hyponatremia	34	42.5
Tubes/Catheters	28	35
>3 Drugs Added	22	27.5
Drugs	20	25
Hypocalcemia	9	11.2
GI Bleed	7	8.7

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The findings reinforce the importance of identifying reversible precipitants early during hospitalization.

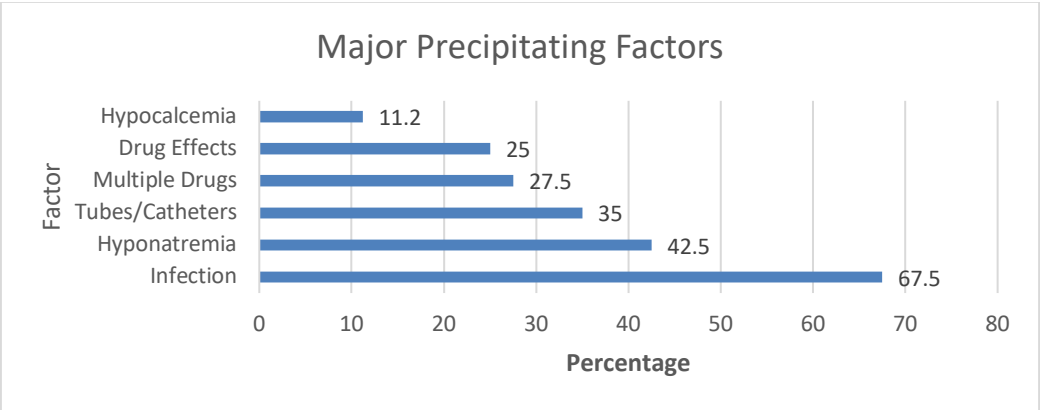

Figure 3: Major Precipitating Factors

Infectious Etiology: Urinary tract infection was the commonest infection (31.2%), followed by lower respiratory tract infection (28.7%).

Table 10: Infectious Etiologies

Infection	Number	Percentage
UTI	25	31.2
LRTI	23	28.7
Bedsore Infection	3	3.7
Septicemia	2	2.5
SBP	1	1.3

Urinary tract and respiratory infections remain major causes of delirium in elderly patients due to systemic inflammatory response and metabolic instability.

Discussion

The present study evaluated the clinical and etiological profile of acute confusional state in hospitalized geriatric patients. The results show that delirium is a multifactorial syndrome strongly associated with advanced age, comorbid diseases, functional dependence, frailty, infection and metabolic abnormalities.

The mean age of the study population was 70.81 years which is in concordance with Francis et al. and Khurana et al. who observed increased prevalence of delirium with increasing age [11,12]. Aging is associated with a reduced neuronal reserve, dysregulation of neurotransmitters, and increased vulnerability to systemic insults. Chronic diseases are common in older people, and their adaptive mechanisms are often diminished. Acute illness may lead to cerebral dysfunction.

The present study showed male predominance. Similar observations have been reported in earlier Indian studies [13]. This may be due to higher prevalence of vascular risk factors, smoking, alcohol use and hospitalisation in elderly men.

Functional dependence and frailty were highly prevalent in the study participants. Nearly 7 in 10 patients were dependent in activities of daily living and 6 in 10 were frail. Frailty has been defined as an important geriatric syndrome with decreased physiological reserve and poor stress tolerance [14]. Functional impairment may be a marker of underlying neurodegenerative processes, nutritional deficiency or chronic systemic disease, all of which predispose to delirium. The study identified a substantial burden of co-morbidities. Hypertension and diabetes mellitus were the most followed by renal failure and ischemic heart disease. Multiple comorbidities lead to the development of chronic inflammation, endothelial dysfunction, impaired cerebral perfusion, and polypharmacy, which in turn increases the risk of delirium. More than one-third of patients had a severe Charlson's comorbidity index, indicating a heavy burden of baseline disease. Hypoactive delirium was the most common subtype encountered in this study. Similar observations have been reported by Meagher et al. and Khurana et al. [15, 16]. Hypoactive delirium is clinically important because it is often missed by health care providers. These people, unlike the hyperactive patients, seem sluggish, withdrawn and less disruptive. This results in delayed diagnosis and poorer outcomes.

The etiological profile in this study is consistent with the multifactorial model of delirium pathogenesis proposed by Inouye et al. [17]. The most frequent pre-disposing factor was hypoalbuminaemia. Serum albumin is a marker of nutritional status and systemic inflammation Hypoalbuminemia may change pharmacokinetics, increase vulnerability to metabolic disturbances and reduce drug binding. Frailty, sensory impairment, poor ADL and polypharmacy were also important contributors.

The main precipitating factor identified was infection, particularly urinary tract and respiratory infections. Systemic infections lead to inflammatory cytokines, oxidative stress and blood brain barrier dysfunction, which may lead to delirium in vulnerable individuals [18]. In older people confusion is a common atypical presentation, rather than fever or localising symptoms, and careful clinical assessment is required. Another major precipitating factor was electrolyte disturbance especially hyponatremia. Disorders of sodium directly affect neuronal excitability and cerebral edema with cognitive dysfunction and altered sensorium. Hyponatremia is common in the elderly, especially secondary to diuretics, renal dysfunction, dehydration and endocrine disturbances.

The study also underscored the importance of iatrogenic factors such as catheterization, feeding tubes, and polypharmacy. Delirium can be caused by pain, discomfort, sleep disturbance, immobility and risk of infection associated with the insertion of catheters. Likewise, the use of multiple medications increases exposure to sedatives, anticholinergics, opioids, and other psychoactive agents known to precipitate delirium. One of the important observations was that most of the patients had more

than one predisposing and precipitating factors simultaneously. This is consistent with the threshold theory of delirium, which suggests that vulnerable elderly people develop delirium when exposed to even minor stressors whereas healthier individuals require more severe insults [19].

The study has several clinical implications. The burden of delirium can be substantially lowered by early identification of high-risk patients, routine delirium screening using the CAM, correction of electrolyte disturbances, infection control, and minimization of unnecessary catheterization and avoidance of polypharmacy. Multidisciplinary geriatric care models are particularly useful, emphasizing hydration, mobilization, sleep hygiene, sensory aids, and orientation strategies.

This study, however, has some limitations. It was performed in a single tertiary care centre with relatively small sample size. Long-term outcomes, such as mortality and cognitive decline, were not evaluated. However, the study provides significant regional data on the etiologic profile of delirium in elderly hospitalized patients.

Conclusion

Acute confusional state is a common and serious geriatric syndrome with multifactorial etiology. Older patients with multiple comorbidities, frailty, poor functional status and hypoalbuminaemia are especially vulnerable. Infection and electrolyte imbalance continue to be the most important precipitating factors. Hypoactive delirium is the most common subtype and is often under-recognized. Routine screening, early diagnosis, timely treatment of reversible causes, rational use of medications and multidisciplinary geriatric care are critical to improve outcomes and reduce the burden of health care.

References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Text Revision. Washington DC: American Psychiatric Association; 2000.
2. Morandi A, Pandharipande P, Trabucchi M, Rozzini R, Mistraletti G, Trompeo AC, et al. Understanding terminology of delirium and other types of acute brain dysfunction in critically ill patients. Intensive Care Med. 2008;34(10):1907-15.
3. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Washington DC: American Psychiatric Association; 2013.
4. Saxena S, Lawley D. Delirium in the elderly: A clinical review. Postgrad Med J. 2009;85 (1006):405-13.
5. Cerejeira J, Firmino H, Vaz-Serra A, Mukaetova-Ladinska EB. The neuroinflammatory hypothesis of delirium. Acta Neuropathol. 2010;119(6):737-54.
6. Inouye SK. Delirium in older persons. N Engl J Med. 2006;354(11):1157-65.
7. Ely EW, Gautam S, Margolin R, Francis J, May L, Speroff T, et al. The impact of delirium in the intensive care unit on hospital length of stay. Intensive Care Med. 2001;27(12):1892-900.
8. Cole MG. Delirium in elderly patients. Am J Geriatr Psychiatry. 2004;12(1):7-21.
9. Inouye SK, Charpentier PA. Precipitating factors for delirium in hospitalized elderly persons: Predictive model and interrelationship with baseline vulnerability. JAMA. 1996;275(11):852-7.
10. Government of India. Situation analysis of the elderly in India. New Delhi: Ministry of Statistics and Programme Implementation; 2011.
11. Francis J, Martin D, Kapoor WN. A prospective study of delirium in hospitalized elderly. JAMA. 1990;263(8):1097-101.
12. Khurana V, Gambhir IS, Kishore D. Evaluation of delirium in elderly: A hospital-based study. Geriatr Gerontol Int. 2011; 11(4):467-73.
13. Grover S, Ghormode D, Ghosh A, Avasthi A, Chakrabarti S, Mattoo SK, et al. Risk factors for delirium and inpatient mortality with delirium. J Postgrad Med. 2013;59(4):263-70.
14. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, et al. Frailty in older adults: Evidence for a phenotype. J Gerontol A Biol Sci Med Sci. 2001;56(3):M146-56.
15. Meagher DJ, Leonard M, Donnelly S, Conroy M, Adamis D, Trzepacz PT. A longitudinal study of motor subtypes in delirium: Relationship with other phenomenology, etiology, medication exposure and prognosis. J Psychosom Res. 2011;71(6):395-403.
16. Khurana PS, Sharma PS, Avasthi A. Prevalence of delirium in geriatric hospitalized general medical population. Indian J Psychiatry. 2002;44(1):41-6.
17. Inouye SK. Predisposing and precipitating factors for delirium in hospitalized older patients. Dement Geriatr Cogn Disord. 1999;10(5):393-400.
18. Fong TG, Tulebaev SR, Inouye SK. Delirium in elderly adults: Diagnosis, prevention and treatment. Nat Rev Neurol. 2009;5(4):210-20.
19. Inouye SK, Westendorp RGJ, Saczynski JS. Delirium in elderly people. Lancet. 2014; 383(9920):911-22.