



## PREVALENCE OF DELIRIUM AMONG ADULT INPATIENTS AVAILING CONSULTATION LIAISON PSYCHIATRY SERVICES IN A TERTIARY CARE CENTRE IN SOUTH INDIA: HOSPITAL BASED CROSS SECTIONAL STUDY

### Psychiatry

**Dr Lakshmi Sen Kumar**

Post graduate Student, MD Psychiatry Government Medical college Thiruvananthapuram.

**Dr Anju Mathew**

Associate Professor Department of Psychiatry Government Medical College Thiruvananthapuram.

### ABSTRACT

**Background:** Delirium is a complex neuropsychiatric syndrome which is common in hospital settings. It is associated with increase in the length of hospital stay, functional decline, health care costs and significant morbidity and mortality. A significant step for devising appropriate measures to prevent and manage delirium is to determine its occurrence and outcomes in a particular setting. The present study aims to find the prevalence of delirium among adult inpatients of tertiary care hospital setting. **Methods:** Cross sectional, tertiary care hospital-based study which was conducted on adult inpatients aged 18 years and above who were referred for consultation liaison psychiatry services. The confusion assessment method was used for screening of delirium and the DSM 5 diagnostic criteria was used for diagnosis. The clinical profile, sociodemographic profile of the patient was recorded in a semi structured questionnaire. Chi-square test and Fischer's exact test were used for comparing categorical variables between groups. Multivariate analysis using binary logistic regression was used to find the adjusted odds ratio and their confidence intervals and its statistical significance. **Results:** 39.2% (98 of 250) patients included in the study were found to have delirium. Patient's age, sex, Intensive Care Unit stay, comorbid physical illness, and past history of delirium were found to have significant association ( $p < 0.01$ ) with delirium **Conclusions:** The prevalence of delirium among adult inpatients availing consultation liaison psychiatry services attending a tertiary care hospital was estimated to be 39.2%. Statistically significant association was found between delirium and age, sex, Intensive Care Unit stay, comorbid physical illness and past history of delirium ( $p$  value  $< 0.01$ ).

### KEYWORDS

#### INTRODUCTION:

Delirium is a complex neuropsychiatric syndrome which is characterized by disturbances affecting consciousness, orientation, memory, thought, perception and behaviour due to one or more structural and physiological abnormalities directly or indirectly affecting the brain.(4)

Delirium varies in duration, with most of the episodes lasting for few days but with certain episodes which can persist for weeks or months in up to 20% of individuals.(6)

The causes of delirium are multifactorial. The development of delirium involves the complex interrelationship between a vulnerable patient with certain predisposing factors and exposure to precipitating factors (10).

The prevalence of delirium varies across patient group and setting, with rates as high as 80% among patients in intensive care units and palliative care setting.(20)

Kishi and colleagues had looked at the rate of missed diagnosis of delirium by general medicine and surgical services, they had found the diagnosis of delirium to be missed in 46% of requested psychiatric consultations.(31)

Delirium is preventable in 30 to 40 % cases; hence it has significant public health relevance as a target for interventions to prevent the burden of complications and expenses associated with it.(2)

Medical in-patient settings have patients with a wide range of conditions and include a large proportion of older patients.(35)

Investigating delirium in the in-patients of a hospital setting would have advantages in terms of wider relevance and generalisability of findings.(3)

#### MATERIAL AND METHODS

This was a hospital based Cross sectional study among the adult inpatients of Government medical college, Thiruvananthapuram who were referred for consultation liaison psychiatry services. The study received the clearance of Institutional Research committee and Institutional Ethics Committee, was conducted over a period of one year. Patients who were incapacitated due to poor medical status and grossly disturbed, uncooperative patients were excluded from the study. The patients listed in the referral register in the department of

Psychiatry was taken for consecutive sampling until the sample size of 250 was met. All patients were seen in person by the researcher herself, informed written consent was obtained for the examination, if patients were unable to give consent owing to their mental state, the same was obtained from the primary medical care taker following which the patients were examined by the researcher herself using the Confusion Assessment Method for screening of delirium, Diagnostic and Statistical Manual of Mental Disorders (DSM 5) diagnostic criteria for diagnosis of delirium. The clinical profile, sociodemographic profile of the patient was recorded in a pre-tested semi structured questionnaire. Chi-square test and Fischer's exact test were used for comparing categorical variables between groups. Multivariate analysis using binary logistic regression was used to find the adjusted odds ratio and their confidence intervals and its statistical significance.

#### Study Tools:

Semi-structured questionnaire – A pre-tested semi structured questionnaire was used to collect the socio-demographic and clinical details of the study subjects.

Confusion Assessment Method (CAM) - CAM is an instrument for identification of delirium. Based on the cardinal elements of the DSM-III R criteria for delirium. The CAM has demonstrated sensitivity of 94-100%, specificity of 89-95% and high inter-rater reliability(56). The instrument assesses the presence, severity, and fluctuation of 9 features of delirium: Acute onset, Inattention, Disorganized thinking, altered level of consciousness, Disorientation, Memory impairment, Perceptual disturbances, Psychomotor agitation or Retardation, Altered sleep-wake cycle.

DSM 5 Diagnostic Criteria was used for the diagnosis of delirium

- A disturbance in Attention (reduced ability to direct, focus, sustain and shift attention) and awareness (reduced orientation to the environment).
- The disturbance develops over a short period of time (usually hours to few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.
- An additional disturbance in cognition (Memory deficit, disorientation, language, visuospatial ability, or perception)
- The disturbances in Criteria A and Criteria C are not better explained by another pre-existing, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.
- There is evidence from the history, physical examination or laboratory findings that the disturbance is a direct physiological

consequence of another medical condition, substance intoxication or withdrawal (due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple aetiologies

## RESULTS:

**Table showing distribution of study sample based on presence of Delirium**

| Presence of Delirium | Frequency | Percentage |
|----------------------|-----------|------------|
| No                   | 152       | 60.8       |
| Yes                  | 98        | 39.2       |
| Total                | 250       | 100.0      |

39.2% of study subjects had delirium

**Table showing Binary logistic regression model for delirium**

|                           | P value | Adj OR | 95% C.I. for Adj OR |
|---------------------------|---------|--------|---------------------|
| Age group                 | 0.000** | 2.508  | 1.803-3.487         |
| Sex                       | 0.000** | 0.180  | 0.078-0.415         |
| ICU stay present or not   | 0.001** | 24.606 | 3.827-158.202       |
| Comorbid Physical illness | 0.000** | 1.799  | 1.440-2.247         |
| Past history of Delirium  | 0.000** | 22.261 | 5.053-98.059        |

\*\* : Significant at 1% (P<0.01)

Binary logistic regression depicted in the above table showed that the patient's, age, sex, Intensive Care Unit stay, comorbid physical illness, and past history of delirium have significant association with delirium.

## DISCUSSION:

This study aimed to assess the prevalence of delirium among inpatients availing consultation liaison psychiatry services in a tertiary care hospital, Thiruvananthapuram, Kerala. 250 patients who satisfied the inclusion criteria were included in the study. The study subjects were screened for delirium using the Confusion Assessment Method (CAM), diagnosis of delirium was confirmed using the DSM 5 diagnostic criteria. The clinical and sociodemographic profile was collected using a questionnaire. Data collected was analysed using SPSS version 22.

A study done in PGIMER, Chandigarh by Grover et al 2009, assessed the rates of psychiatric referrals, clinical profile and treatment of delirium in a tertiary-care hospital setting. The diagnosis was made as per ICD 10 by a three-tier evaluation system, comprising of an independent evaluation of the referred case by a trainee psychiatrist under the supervision of a qualified psychiatrist and a consultant psychiatrist. The largest diagnostic category was constituted by delirium comprising of 30.77 to 38.95% of all referred cases.

A study conducted by Kazhungil et al 2014, with a sample size of 403 assessed the prevalence of delirium and a comparison profile of delirium due to medical aetiologies and alcohol withdrawal delirium in a hospital situated in rural setting. The prevalence of delirium was found to be 19.4%. Their study used International Classification of diseases 10 (ICD 10), Diagnostic Criteria for Research for diagnosis of delirium and the diagnosed cases were rated using Delirium Rating scale (36).

A cross sectional study conducted by Sharma et al in 2016, Tertiary care hospital-based study in northern India compared the prevalence of delirium in the emergency setting and consultation liaison psychiatry services. Delirium was diagnosed based on the DSM – 5 diagnostic criteria, DRS R 98 scale was used for assessment of severity and cognitive symptoms of delirium. The sample size of the study was 100. As per their study 66% of study subjects availing the consultation liaison psychiatry services had delirium, whereas 42 % in the emergency group had delirium(37)

A study conducted by Khurana et al, in south India, assessed the prevalence of delirium among elderly inpatients of general medicine ward and was found to be 27%. The study tools used were Mini Mental Status Examination (MMSE), Confusion Assessment Method (CAM), Delirium Symptom Interview (DSI) and ICD 10 Diagnostic Criteria of Research for diagnosis of delirium(38)

In a study conducted by Sharma et al in North India, a hospital based cross-sectional study among 149 patients referred from other departments, the prevalence of delirium was found to be 24.2%. The study tools used were Mini Mental Status Examination (MMSE) and DSM IV TR for diagnosis of delirium by a two-tier system of evaluation(39)

In western studies, a Systematic review of literature carried out by Siddiqi et al ,2006 in UK revealed the prevalence of delirium in medical inpatient wards between 10 to 31 % (3). A systematic review of prospective studies in hospitalized patients by Fann et al reported the prevalence of delirium to range 5-44 % and incidence to range 3-42 % (47).

There is wide variation in the reported prevalence of delirium among inpatients availing consultation liaison Psychiatry services in hospital setting across India. This could be due to the difference in socio-demographic factors, study instruments, study setting, quality of assessment. Studies carried out in tertiary care hospital settings, with adequate sample size revealed higher prevalence rate.

The High prevalence of delirium in the population calls for screening of delirium especially in elderly inpatients. Early identification may help in early intervention and prevention of further complications.

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