A Clinical Profile of Delirium in Patients Admitted to Medical Intensive Care Unit

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Abstract: _Background_: _Delirium, an acute and fluctuating disturbance of consciousness and cognition, is a common manifestation of acute brain dysfunction in critically ill patients, occurring in upto 80% of the sickest intensive care unit populations. Hence the study was undertaken to determine the predisposing factors, precipitating factors and clinical outcome among the patients admitted to medical intensive care unit[1]._ _Methodology & Results_: _This was an observational cross-sectional study done on 100 patients with delirium admitted to medical intensive care unit. Among them 71 (71%) patients were males and 29 (29%) patients were females. The most common affected were in the age group of 40-59 years which accounts for 40 (40%) patients followed by ≥60 years accounts for 37 (37%) of patients. Diabetes mellitus 51 (51%), Hypertension 33 (33%) and renal failure 15 (15%) being the most commonly associated comorbidities. Male gender 71 (71%) was the commonest predisposing factor followed by Hypoalbuminemia 39 (39%), Visual impairment 35 (35%) and Age >60 years. Precipitating factors include IV lines/ Ryle's tube insertion/ Foley's catheterization 64 (64%) being the most common followed by Medications (like sedative-hypnotics, anticholinergics), Dehydration 39 (39%), Hyponatremia 33 (33%) and Alcohol withdrawal 29 (29%)._ _Conclusion_: _Male gender formed the largest group among study population 71 (71%). Delirium has more predilection towards elderly population. Multiple predisposing, precipitating factors and comorbidities associated with delayed recovery, prolonged ICU stay and poorer outcome._

Keywords: Delirium, Precipitating factors and Predisposing factors

1. Introduction

Delirium is a serious neuropsychiatric syndrome presenting with inattention and global changes in cognition[2]. It is characterized by abrupt onset and fluctuating course. There is a disturbance in the level of awareness and reduced ability to direct, focus, sustain and shift attention. The rates of delirium increase with increase in the age of the general population. Delirium is the most common reason for acute cognitive dysfunction in hospitalized elderly patients[3]. Delirium is often multifactorial and may be the sole manifestation of a serious underlying disease.

Delirium is associated with prolonged hospitalization, decreased cognitive and physical functioning and poor outcome[4]. Prompt identification of patients with predisposing factors and removing them if possible and minimizing the precipitating factors is the most effective way tackling this problem. Hence this study was undertaken to determine the predisposing factors, precipitating factors and comorbidities which hamper the recovery and results in poor clinical outcome.

2. Material and Methods

The present study was an observational cross-sectional study conducted in a tertiary care hospital from January 2020 to June 2021 after ethical committee approval, certificate no: PESIMSR/IHEC/53/2019. The study participants were chosen based on purposive sampling with a sample size of 100 patients. All patients already diagnosed to have delirium who fulfilled CAM-ICU (Confusion Assessment Method-Intensive Care Unit) and ICDSC (Intensive Care Delirium Screening Checklist). Patients who were comatose and having problems in comprehension like profound hearing loss and aphasia were excluded from the study.

3. Results

Among 100 Delirium patients, majority were in the age group of 40-59 years 40% and 37% were elderly.

Out of 100 patients 71 (71%) were males and 29 (29%) were females with sex predilection towards males. Commonly associated comorbidities were Diabetes mellitus 51 (51%) followed by Hypertension 33 (33%) and Renal failure 15 (15%). Male gender is the most important predisposing factor 71 (71%) followed by Hypoalbuminemia 39 (39%), visual impairment 35 (35%), Age >60 years 32 (32%), Alcohol abuse 29 (29%) and Hearing impairment 21 (21%). Patients who were on IV lines/ Ryle's tube/ Foley's catheterization 64 (64%) is the predominant precipitating factor for delirium. Other common precipitating factors were Medications 54 (54%) (like sedative-hypnotics, anticholinergics), Dehydration 39 (39%), Hyponatremia 33 (33%), Alcohol withdrawal 29 (29%), Acute kidney injury 28 (28%) and Infections 27 (27%). The overall mortality was 7 (7%) among the study population.

1) Age distribution:

Age Category	Number of patients (n=100)	Percentage
18-39yrs	23	23%
40-59yrs	40	40%
≥60yrs	37	37%

2) Gender distribution:

Gender	Number of patients (n=100)	Percentage
Male	71	71%
Female	29	29%
Total	100	100%

3) Commonest comorbidities:

Comorbidity	Number of patients (n=100)
Diabetes mellitus	51 (51%)
Hypertension	33 (33%)
Renal failure	15 (15%)

4) Predisposing factors:

Predisposing factor	Number of patients (n=100)
Male gender	71 (71%)
Hypoalbuminemia	39 (39%)
Visual impairment	35 (35%)
Age >60 years	32 (32%)
Alcohol abuse	29 (29%)
Hearing impairment	21 (21%)

5) Precipitating factors:

Precipitating factors	Number of patients (n=100)
IV lines/ Ryle's tube/ Foley's catheterzation	64 (64%)
Medications	54 (54%)
Dehydration)	39 (39%)
Hyponatremia	33 (33%
Alcohol withdrawal	29 (29%)
Acute kidney injury	28 (28%)
Infections	27 (27%)

4. Discussion

Delirium is a common manifestation of acute brain dysfunction in critically ill patients admitted to intensive care unit.

The majority of patients in this study group were between 40-59 years (40%), there were 37% in the age group ≥60years, and 23% in the category 18-39years. Most studies show increasing age as a risk factor for delirium with the highest prevalence in the old age groups, the study by Davis DH et al demonstrated prevalence of delirium increases with age, with 8.2% in 65-69 years age group and 36.1% in those 85years or older[5]. The fact that the majority of patients in this study population were in the 40-59 years, can be explained by the demography of the people in India. The life expectancy in India is 66.08 years for males and 68.33 years for females. This explains why most of our study patients were in the 40-59 years category. Males 71 (71%) are more commonly affected than females 29 (29%) which is similar to the study by Grover S et al showed a gender distribution of 65.6 % males and 34.4% females[6].

Commonest comorbidities in the study were Diabetes 51 (51%) and Hypertension 33 (33%). The Indian study by Chrispal A et al in patients with delirium, showed prevalence of hypertension as 64.7% and that of diabetes as

47.1% which is comparable to this study. The percentage of renal failure in this study was 15% compared to 11.8% in the study by Chrispal A et al[7].

The commonest precipitating factor noted in this study was insertion of intravenous lines, urinary catheters and feeding tubes, which was present in 64% of the study patients. The study by Robinson TN et al describes urinary catheters, nasogastric tubes or multiple intravenous access lines as risk factors for delirium[8]. Inouye SK et al in their study also identified insertion of urinary bladder catheter as an independent precipitating factor for delirium[9]. The next precipitating factor for delirium was the use of drugs 54 (54%) with the potential to cause delirium. The study done by Alagiakrishnan K et al describes drugs as the most common reversible cause of delirium. He described anticholinergic medications, benzodiazepines, non-steroidal anti-inflammatory drugs, dopaminergics, corticosteroids and narcotics as the commonest drugs inducing delirium[10]. These drugs cause alteration in the homeostasis between excitatory and inhibitory neurotransmitter. Other common precipitating factors were dehydration, hyponatremia, alcohol withdrawal, acute kidney injury and infections. Infections 27 (27%) of lower respiratory tract and urinary tract were another major precipitating factor for delirium in this study. In the study by Laurila JV et al, infection was the most common precipitating factor and was present in 82.7% of their study population.

The commonest predisposing factor in our study was Male gender 71 (71%), followed by Hypoalbuminemia 39 (39%), Visual impairment 35 (35%), Age >60 years 32 (32%), Alcohol abuse 29 (29%) and Hearing impairment in 21 (21%) which is explained by Suman Ahmed et al, where multiple predisposing factors plays crucial role in development of delirium and associated with delayed recovery and mortality.

5. Conclusion

Delirium is a serious neuropsychiatric syndromewhich is affected by multiple comorbidities, predisposing factors and precipitating factors. Early identification of these factors is essential to assess prognosis and oucome of the disease. Avoidance of precipitating and predisposing factors with strict control comorbid conditions will help in early recovery, decrease in length of hospital stay and good clinical outcome. This will help in reducing morbidity and mortality among those patients admitted to medical intensive care unit.

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