

Research Article

Study of Delirium on Psychiatric Referrals at Helping Hands Community Hospital, Kathmandu, Nepal

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ABSTRACT

Background and Objectives: Delirium is one of the most important neuro-psychiatric disorders in Consultation liaison psychiatry. There is a dearth of studies in this subject in Nepalese context. The objective of this study was to find out the demographic profile, source of referral, reason for referral and possible risk factors for delirium and association between risk factors and subtypes of delirium.

Material and Methods: This is a descriptive cross-sectional study carried out in a tertiary care center over a period of six months. Delirium was diagnosed by psychiatrist based on International Classification of Disease, 10th revision, Diagnostic Criteria for Research (ICD-10 DCR) and was classified into subtypes using the Liptzin and Levkoff criteria. Data analysis was done using SPSS version 16 and chi-square test was applied to find the association between risk factors and subtypes of delirium.

Results: A total of 52 cases of delirium were included in the study. Majority of cases were aged 65 years and above with male preponderance. The most common cause for referral was disturbed behavior and disorientation. Hyperactive delirium was the most common subtype of delirium. Most of the referred cases of delirium were from Medical ward and Intensive Care Unit/Critical Care Unit (ICU/CCU). Infection / Inflammation, Drug/alcohol intoxication or withdrawal and those with multiple etiologies were the most common possible causes of delirium. There was no significant difference in terms of associated risk factors between the clinical subtype ($p = 0.8023$).

Conclusion: The presence of delirium warrants prompt intervention to identify and treat the underlying causes and consultation liaison psychiatric services should be enhanced to achieve this goal.

Key words: Delirium, Risk factors, Subtypes

INTRODUCTION

Delirium is a complex neuropsychiatric syndrome presenting primarily with

disturbances of cognition, perception and sensorium, alertness, sleep/wake cycle, and psychomotor behavior in the context of a medical etiology [1]. The presentation can be

quite variable among patients and even within a given patient because of its waxing and waning course. This variability and overlap with other psychiatric syndromes has led to substantial under recognition and under treatment in clinical settings [2]. Delirium is a disturbance of consciousness characterized by acute onset, rapid fluctuations in mental status and impaired cognitive functioning.

Delirium occurs in 30% of hospitalized patients and is associated with prolonged hospital stay and increased morbidity and mortality [1]. Delirium is acute in onset, has multiplicity of etiology and manifestations and high risk of mortality, delirium is very rewarding in proper management and outcome. Delirium, though quite often referred to psychiatrists for management, does not find many takers for analysis, research and publications [1]. There is a dearth of Nepalese studies both in international and national scientific literature. Hence, this study was conducted with the objective to find out the demographic profile, source of referral from various faculties, reason for referral, subtypes and possible causes/ risk factors of delirium.

MATERIAL AND METHODS

This is a descriptive study and was carried out in Helping Hands Community Hospital (HHCH), located in Chabahil, Kathmandu for duration of six months from 2016/12/16 to 2017/05/13. All referred cases from various facilities/wards of HHCH, diagnosed as delirium using ICD-10 DCR [3] by the psychiatrist, were included in the study. A self-designed semi-structured Performa that includes socio-demographic profile, source of referral, reason cited for referral and possible causes (etiology) for delirium, was administered to collect clinical data from the participants. Diagnosed cases of delirium were further classified into subtypes using the Liptzin and Levkoff criteria [4]. All data were entered and analyzed using SPSS version 16 and Chi-square test was

administered to find association between risk factors and subtypes of delirium. Possible risk factors of delirium were identified on the basis of clinical profile of patient and relevant investigations. Ethical clearance was granted by the concerned hospital before the initiation of research and informed verbal consent was taken from the patient's caretaker for conducting the research.

RESULTS

The study population consisted of 52 cases of delirium. Delirium was most common in age group above 65, followed by 55-65 (Fig.1).

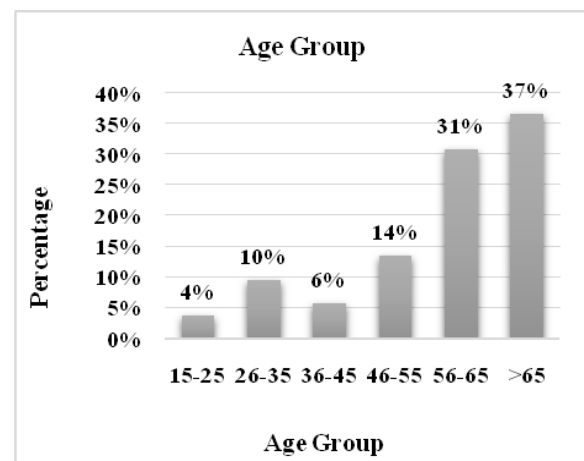


Fig.1: Distribution by Age Group

There were 46 males and 34 females diagnosed as delirium (Fig.2).

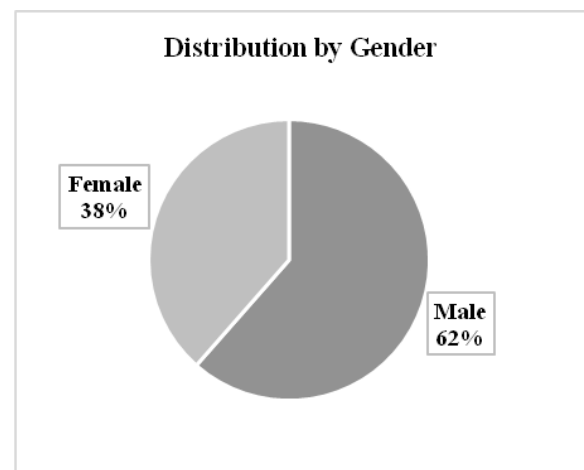


Fig.2: Distribution by Gender

The most common reason cited for psychiatric referral (Table 1) was disturbed behavior, followed by disorientation, irrelevant talks and disturbed sleep. Hyperactive delirium was the most frequent subtype of delirium comprising of 43 cases followed by mixed subtype (8 cases) and least common being hypoactive delirium (2 cases) (Fig.3).

Clinical Manifestation	Frequency	Percent
Irrelevant talks	14	26.9
Disorientation	13	25
Altered / odd/ Disturbed Behaviour	20	38.5
Sleep Disturbance	5	9.6
Total	52	100

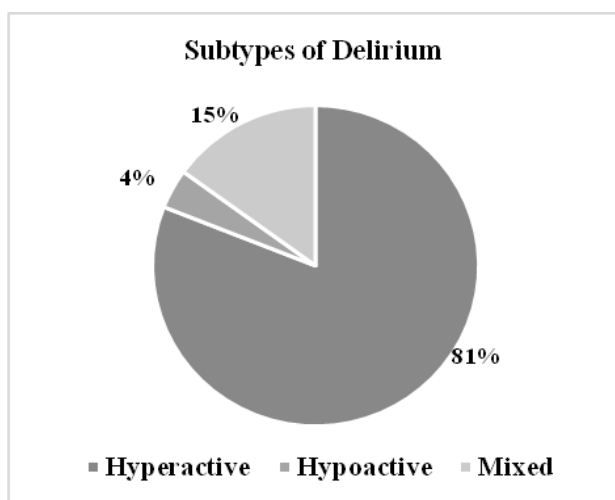


Fig.3: Subtypes of Delirium

Most of the referred cases of delirium in our study were from medicine ward followed by ICU/CCU and surgery/ postoperative ward (Fig.4). Most common possible risk factor for delirium in the study population was found to be due to infection/ inflammation (23.1%) and drug/ alcohol intoxication/ withdrawal (23.1%) as well as those with multiple etiologies (23.1%) as shown in (Table 2).

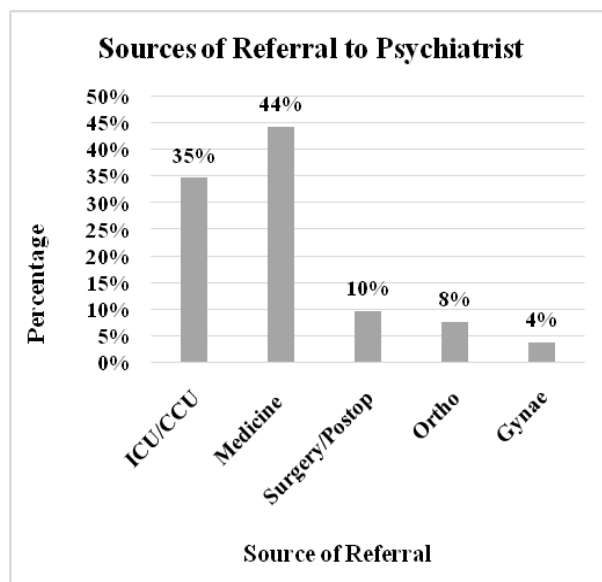


Fig.4: Sources of Referral to Psychiatrist

Risk Factors	Frequency	Percent
Infection/Inflammation	12	23.1
Fluid/ electrolyte imbalance	3	5.8
Drugs/ Alcohol	12	23.1
Organ dysfunction (renal, cardiac, hepatic)	11	21.2
Multiple etiology	12	23.1
Cause could not be established	2	3.8
Total	52	100

Table 3 shows the association between risk factors for delirium and subtypes of delirium. When each risk factor is assessed separately, a significant association between infection/inflammation/ multiple etiological factors and the hyperactive subtype of delirium was evident ($p < 0.01$). Similarly, infection/inflammation was found to be significantly associated with the mixed subtype of delirium ($p < 0.01$). However, when the overall the data was considered, no statistically significant association between different risk factors and delirium subtypes was found ($p = 0.8023$).

Table 3: Association between risk factors and subtypes of Delirium

Risk Factors	Hyperactive	Hypoactive	Mixed	Total
Infection/ Inflammation	10 9.69 (0.01)	0 0.46 (0.46)	2 1.85 (0.01)	12
Electrolyte Imbalance	2 2.42 (0.07)	0 0.12 (0.12)	1 0.46 (0.63)	3
Drugs/ Alcohol	11 9.69 (0.18)	0 0.46 (0.46)	1 1.85 (0.39)	12
Organ Dysfunction	8 8.88 (0.09)	1 0.42 (0.79)	2 1.69 (0.06)	11
Multiple Etiologies	10 9.69 (0.01)	1 0.46 (0.63)	1 1.85 (0.39)	12
Not established	1 1.62 (0.23)	0 0.08 (0.08)	1 0.31 (1.56)	2
Total	42	2	8	52

$\chi^2 = 6.153$, $df = 10$, $\chi^2/df = 0.62$, $P(\chi^2 > 6.153) = 0.8023$
 Expected values are displayed in *italics*
 Individual Chi-square Values (χ^2) are displayed in (parentheses)
 df- degree of freedom

DISCUSSION

Though delirium is a fairly common clinical condition, most clinicians do not routinely screen for its presence in practice, possibly in part due to an under appreciation of its impact, and probably also due to a paucity of brief screening assessments. Delirium is the end product of a sequence of local and systemic insults and injury that lead to a common measurable manifestation of end-organ brain injury. Implicit in the syndromal characterization is the underlying notion that delirium does not have a single etiology but

rather has multiple different and potentially interacting etiologies [5].

Approximately 15 - 60 % of elderly patients experience a delirium prior to or during a hospitalization but the diagnosis is missed in up to 70% of cases. Delirium, if not properly addressed, is associated with prolonged hospitalization, functional decline, and even death [6]. Delirium is common in hospitalized general medical patients. Upon admission, approximately 11–25% of hospitalized elderly patients will have delirium (prevalent delirium) [7]. An additional 29–31% of hospitalized older patients admitted without

delirium will develop delirium (incident delirium) [8].

Our study shows that most cases of delirium were in patients aged above 65 and with male preponderance which is similar to the study done by Meagher et al [9] and Maldonado and colleagues [10], as elderly population are more predisposed to develop delirium. In a study of delirium by Grover et al. [11], the most common reason cited for referral was disturbed behavior followed by psychotic symptoms like delusion and hallucination and sleep disturbances which corroborates with finding in our study where disturbed behavior, disorientation and sleep disturbances were common reasons for referral as these symptoms are easily noticeable.

The incidence of delirium among medically ill patients ranges from 10% in the general medicine ward to 85 % in advanced cancer [12]. In the adult general medicine population the incidence of delirium ranges from 10% to 24%: as reported by Speed and colleagues 10.9% [13], Maldonado and colleagues 14% [10], Ritchie and colleagues 14.6% [14], and Gonzalez and colleagues 24% [15]. Similarly, in the general surgical population the incidence of delirium is about 37% to 46% [16], and postoperative delirium has been described to occur in 10% to 60% of patients [17].

The incidence of Post op delirium appears to increase with the risk of the surgery, such that otolaryngological, general surgery, aortic, major abdominal and cardiac surgeries have, respectively, increased reported incidence [18]. The increased incidence of postoperative delirium with those surgeries correlates with factors such as co-existing

severe medical illness, prolonged exposure to general anesthetics, narcotic analgesic and benzodiazepines, older age, increased chance of infection and inflammatory response and dyselectrolytemia and long duration of operative hours.

Similar to other settings, there is widely reported prevalence and incidence of delirium in the ICU. The prevalence of delirium in ICU cohort studies has been reported as low as 20–30% [19] and as high as 70–80% or more [20]. Incident delirium has similarly been described from 22 to 83% [21].

Maldonado and colleagues [10] found an 18% incidence of delirium in an acute ICU (eg, combined medical and surgical patients) based on Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria. The incidence of delirium in the ICU has been reported to be as high as 81.3% [21]. Our study showed that most cases of delirium are from medical ward, followed by ICU and surgical/ postoperative ward.

Risk factors for delirium across any setting, including the medical ward, can be categorized into patient vulnerability (or predisposing) factors and potentially modifiable (or precipitating) factors [14, 15]. Several potentially modifiable factors of delirium have been identified in the hospital literature. Patients with higher severity of illness are more likely to experience delirium [7, 22, 23]. Infections, such as a urinary tract infection or pneumonia, are probably some of the most common precipitants of delirium and may be present in 34–64% of the hospitalized patients with delirium [23, 24, 25]. Other delirium precipitants in the hospital literature include dehydration [7],

electrolyte abnormalities [7], acute kidney injury or liver failure [7], ethanol or benzodiazepine withdrawal [26, 27], central nervous system insults [24] and seizures [24]. Congestive heart failure [23, 25] and acute myocardial infarction [25] have also been implicated as delirium precipitants. Multiple delirium precipitants may co-exist at one time in many delirious patients [7], and conversely in some patients, no obvious etiological agent can be found [28].

In our study, the most common risk factors for delirium are infection/ inflammation (23.1%), Drugs/alcohol intoxication or withdrawal (23.1%) and multiple etiologies (23.1%) whereas cause could not be established in 3.8%.

Liptzin and Levkoff [4] were the first to characterize the different types of delirium based on behavioral characteristics. Others have confirmed the presence of these motoric subtypes. According to these studies, there are at least three types of delirium based on their clinical manifestations: hyperactive, hypoactive, and mixed [29, 30].

The most common type is the mixed form (46%), followed by the hyperactive (30%) and the hypoactive (24%). To most physicians, the most clear and recognizable form is the hyperactive type. Hyperactive delirium is characterized by agitation, restlessness, delusion, hallucination, disorientation and emotional lability whereas hypoactive delirium is characterized by decreased responsiveness, withdrawal, and apathy [29]. The term "mixed type" is used to describe the classic "waxing and waning" pattern, commonly seen in medically ill patients who appear agitated and combative at times, with alternating episodes of

somnolence and hypo-activity. The most difficult type of delirium to identify is the hypoactive type.

Classically, these patients present with symptoms that are commonly associated with depression [4]. These include unawareness of the environment, lethargy, apathy, decreased level of alertness, psychomotor retardation, decreased speech production, and episodes of unresponsiveness or staring. Patients with hypoactive delirium often endorse depressive symptoms, such as low mood (60%), worthlessness (68%), and frequent thoughts of death (52%) [30]. Regarding our study, hyperactive delirium was the most common subtype, accounting for 81% of total cases of delirium. This may be due to fact that they are brought into clinical attention earlier and their clinical symptoms are most common reason for consultation for psychiatrist from other medical faculties.

In our study, no statistically significant association was found between the specific risk factors and delirium subtypes. ($p=0.8023$). This is in agreement with previous studies which have also shown the absence of any etiological differences between the delirium subtypes [8].

CONCLUSION

Delirium is one of the most frequently encountered neuro-psychiatric disorders in consultation liaison psychiatry. It is necessary to diagnose this condition as early as possible and prompt intervention is needed to identify and treat underlying causes and provide supportive care. Vigilant efforts need to continue across the healthcare continuum to preserve and restore baseline mental status. Formal education and consultation liaison

psychiatric services should be enhanced to achieve this goal.

LIMITATION OF STUDY

This study was carried out in a small hospital with relatively small sample size. Hence the results are difficult to generalize.

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AUTHOR'S CONTRIBUTION

PB- Planning of research, data collection and descriptive analysis, preparation of final manuscript; **DJ-** Review of the first draft, data analysis, suggestion and feedback.

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