WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 5.990
Volume 4, Issue 7, 1717-1733. Research Article ISSN 2277– 7105

MEASURE OF CLINICAL OUTCOME INDICATORS OF DELIRIUM-A PROSPECTIVE INTERVENTIONAL STUDY

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Article Received on
05 May 2015,

Revised on 30 May 2015,
Accepted on 24 June 2015

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ABSTRACTS

Delirium is a syndrome which occurs more frequently in people in their later years. Delirium represents an organically caused decline from a previously attained baseline level of cognitive function. Aim and objectives was to determine the delirium prevalence in psychiatry in-patients & MICU patients and to establish a relationship between incidence of delirium in an MICU and the patient outcome (cognitive function) after discharge. A Prospective interventional study was conducted in MVJ Medical Hospital. The study was conducted in two different departments viz., Psychiatry and MICU. In psychiatry department the delirium status was assessed by the DRS-R 98 scale at the time of admission and at the time of discharge. In MICU, RASS scale was performed to assess the level of consciousness and the CAM-ICU criteria was used to assess the delirium status, and MMSE scale was used to assess the cognitive function status during the admission and after 1 month of discharge. After 1 month of discharge, patients with severe cognitive impairment showed poor improvement while patients with mild cognitive impairment had resolved from the delirium. Biochemical parameters like Hemoglobin %, Serum creatinine & electrolytes were also altered in this group of patients. Physician should have a clear idea on the symptoms of delirium and the immediate measures that has to be taken in patients with delirium.

KEYWORDS: Delirium, Psychiatry, MICU, Cognitive function, Psychiatry rating scale.

INTRODUCTION

The syndrome of delirium is better thought of as having a multi-factorial etiology, as is often the case in most medically ill patients. Patients in the ICU are usually critically ill, which makes them more susceptible to developing delirium. There are many risk factors known to contribute to the development of delirium. [1-7]

Despite progress in the understanding of its clinical presentation, analysis of its clinical epidemiology, presentation and consequence to the overall clinical outcome remains complex. In fact, although studies have indicated that delirium is a predictor of a longer hospital stay there is limited work concerning delirium prevalence and physician detection rates in an MICU (Intensive care units). This gap in knowledge is especially critical when considered with the care offered in intensive care settings and consequently, its imprint on patient demographics,[3] In spite of the importance in identifying Delirium in MICU, Some studies evaluates the greater risk of prevalence and incidence of delirium in psychiatric in-patients. Delirium is more often seen with concomitant psychiatric disorders (association of delirium and dementia, delirium tremens in alcoholic dependence subjects, and also with substance abuse), and also a variety of drugs used in psychiatry in-patients are known to have a significant role in incidence of delirium.[8]

Delirium increases the length of hospital stay in MICU Patients and also results in poor cognitive functioning of psychiatric inpatients.[3] So, there is a great need for the study on delirium in psychiatric in-patients and also in patients admitted to MICU, which results in early detection of delirium in both the cases, ultimately leads to offer a better patient care and achieve better outcomes. Hence this study was planned to determine the delirium in psychiatry and MICU, and to measure the clinical outcome indicators of delirium.

MATERIALS AND METHODS

A Prospective interventional study was carried out in the Department of Psychiatry and MICU at a 900 bedded multi-disciplinary tertiary care teaching hospital. The study was approved by the Institutional Ethics and Research Committee, Bangalore. The study period was for 6 months.100 cases were included in this study. The inclusion criteria included Written Informed consent from the patient. All psychiatry patients admitted to MICU and psychiatry departments were included in the study. Pregnant women and patients under 18 years of age were excluded from the study. A Prospective, observational study was carried

out in the Psychiatry and MICU Departments. A well structured patient data collection proforma was used to collect the patient information. In Psychiatry department the study was conducted by using the DRS-R-98 Score sheets, all the patients who met the inclusion criteria for the psychiatry department were enrolled in the study, and the DRS-R-98 (Delirium Rating Scale- Revised-98) was performed on the day of patients admission, and also at the time of discharge, to evaluate the delirium outcome.

In MICU, RASS (Richmond agitation and sedation scale) was performed on all the patients who met the inclusion criteria, to assess the sedation level. The patients who met the criteria (Score ≥3) after performing RASS were assessed for the delirium status by using CAM-ICU Criteria (Confusion Assessment Method for ICU) .If the CAM-ICU criteria gives Delirium +ve, then the MMSE (Mini Mental State Examination) is carried out in those patients, the MMSE is repeated in the same patients after the 1 month of discharge (during follow up) to know the outcome (alterations in cognitive functioning).

DRS-R-98 (DELIRIUM RATING SCALE REVISED-98)[7]

DRS-R-98 SCORESHEET

Name of patient: _____ **Date:** ___/___/___ **Time:** _____

Name of Rater: _____

SEVERITY SCORE: ☐ **TOTAL SCORE:** ☐

Severity Item	Item Score				Optional Information
Sleep-wake cycle	0	1	2	3	☐ Naps ☐ Nocturnal disturbance only ☐ Day-night reversal
Perceptual disturbances	0	1	2	3	Sensory type of illusion or hallucination: ☐ auditory ☐ visual ☐ olfactory ☐ tactile Format of illusion or hallucination: ☐ simple ☐ complex
Delusions	0	1	2	3	Type of delusion: ☐ persecutory ☐ grandiose ☐ somatic Nature: ☐ poorly formed ☐ systematized
Lability of affect	0	1	2	3	Type: ☐ angry ☐ anxious ☐ dysphoric ☐ elated ☐ irritable
Language	0	1	2	3	☐ Check here if intubated, mute, etc.
Thought process	0	1	2	3	☐ Check here if intubated, mute, etc.
Motor agitation	0	1	2	3	☐ Check here if restrained *Type of restraints:*
Motor retardation	0	1	2	3	☐ Check here if restrained *Type of restraints:*
Orientation	0	1	2	3	Date: Place: Person:
Attention	0	1	2	3	
Short-term memory	0	1	2	3	Record # of trials for registration of items: ☐ Check here if category cueing helped
Long-term memory	0	1	2	3	☐ Check here if category cueing helped
Visuospatial ability	0	1	2	3	☐ Check here if unable to use hands
Diagnostic Item	**Item Score**				**Optional Information**
Temporal onset of symptoms	0	1	2	3	☐ Check here if symptoms appeared on a background of other psychopathology
Fluctuation of symptom severity	0	1	2		☐ Check here if symptoms only appear during the night
Physical disorder	0	1	2		Implicated disorders:

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CAM-ICU WORKSHEET.[11]

Feature 1: Acute Onset or Fluctuating Course	**SCORE**	**CHECK IF PRESENT**
Is the pt different than his/her baseline mental status? OR Has the patient had any fluctuation in mental status in the past 24 hours as evidenced by fluctuation on a sedation scale (i.e., RASS), GCS, or previous delirium assessment?	Either question Yes →	☐
Feature 2: Inattention **Letters Attention Test**		
Directions: Say to the patient, *"I am going to read you a series of 10 letters*. *Whenever you hear the letter 'A,' indicate by squeezing my hand."* Read letters from the following letter list in a normal tone 3 seconds apart. **S A V E A H A A R T** **Errors are counted when patient fails to squeeze on the letter "A" and when the patient squeezes on any letter other than "A."**	Number of Errors >2 →	☐
Feature 3: Altered Level of Consciousness		
Present if the Actual RASS score is anything other than alert and calm (zero)	RASS anything other than zero →	☐
Feature 4:Disorganized Thinking		
Yes/No Questions 1. Will a stone float on water? 2. Are there fish in the sea? 3. Does one pound weigh more than two pounds? 4. Can you use a hammer to pound a nail? **Errors are counted when the patient incorrectly answers a question.**	Combined number of errors >1→	☐

MMSE (MINI MENTAL STATE EXAMINATION) SCALE. [12]

The mini mental state examination

Orientation

Year, month, day, date. season	_____/5
Country, county, town, hospital, ward (clinic)	_____/5

Registration

Examiner names three objects (for example, apple, pen, and table)	
Patient asked to repeat objects, one point for each.	_____/3

Attention

Subtract 7 from 100 then repeat from result, stop after five subtractions. (Answers: 93, 86, 79, 72, 65)	
Alternatively if patient errs on subtraction get them to spell world backwards: D L R O W	
Score best performance on either task.	_____/5

Recall

Ask for the names of the objects learned earlier.	_____/3

Language

Name a pencil and a watch.	_____/2
Repeat: 'No ifs, and or buts.'	_____/1
Give a three stage command. Score one for each stage (for example, 'Take this piece of paper in your right hand, fold it in half and place it on the table.'	_____/3
Ask patient to read and obey a written command on a piece of paper stating: 'Close your eyes.'	_____/1
Ask patient to write a sentence. Score correct if it has a subject and a verb.	_____/1

Copying

Ask patient to copy intersecting pentagons.	
Score as correct if they overlap and each has five sides.	_____/1

Total score: _____/30

RESULTS

The Results were presented using Graphical Representations, and were expressed in percentages and also by simple descriptive statistics like Mean, Standard Deviation, Range.

DRS-R 98 (DELIRIUM RATING SCALE-REVISED 98) SCORE ASSESSMENT

The Mean ± SD (range) of DRS-R 98 scores are as follows, in delirium +ve patients (at admission;26.1±3.9 (17), at discharge; 13.2 ± 3.7 (15) in delirium –ve patients at admission (8.6 ± 4.4 (12), at discharge; 4.7 ± 2.6 (9). It clearly indicates that the DRS-R 98 Scores at the

time of discharge were normal (no delirium) when compared with the scores at the time of admission.**(Table-1)**

TABLE -1 DRS-R 98 scores assessment

At the Time of	Mean ± SD (range) of DRS-R 98 Scores in Delirium positive cases	Mean ± SD (range) of DRS-R 98 Scores in Delirium negative cases
Admission	**26.1 ± 3.9 (17)**	**8.6 ± 4.4 (12)**
Discharge	**13.2 ± 3.7 (15)**	**4.7 ± 2.6 (9)**

DISTRIBUTION OF PATIENTS IN MICU BASED ON GENDER

Out of 50 patients from MICU ward 33 (66%) were male and 17 (34%) were female. Male population is relatively more than females.**(Table-2, Figure-1)**

TABLE -2 Distribution of patients in MICU based on gender

Total No. of Patients (%)	Male Patients (%)	Female Patients (%)
n=50 (100%)	**33 (66%)**	**17 (34%)**

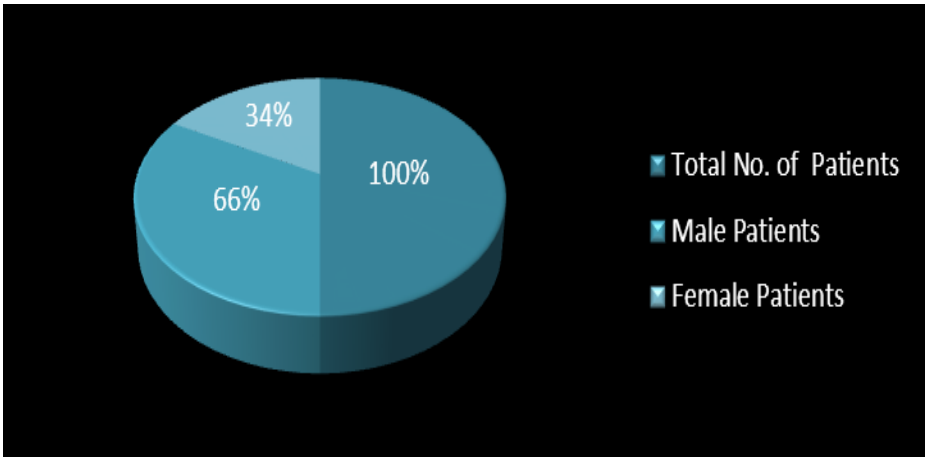

FIGURE -1 Distribution of patients in MICU based on gender

DISTRIBUTION OF PATIENTS IN MICU BASED ON AGE

Out of 50 patients (33-male, 17-female), age distribution in MICU were as follows, 20-30;(male-8(24.2%), female-6 (35.3%); 31-40 (male-6 (18.2%), female-3 (17.6%); 41-50 (male-5 (15.1%), female-2 (11.8%); 51-60 (male-2 (6.1%), female -1 (5.9%); 61-70 (male-6 (18.2%), female-3 (17.6%); >70 (male -6 (18.2%), female-2 (11.8%). Out of all the age groups patients between 20-30 age group are relatively more, followed by 31-40 & 61-70.**(Table-3, Figure-2)**

TABLE-3 Distribution of patients in MICU based on age

Total No.of Patients	20-30 (%)	31-40(%)	41-50(%)	51-60 (%)	61-70 (%)	>70(%)
No.of Male 33(%)	8 (24.2%)	6 (18.2%)	5 (15.1%)	2 (6.1%)	6 (18.2%)	6 (18.2%)
No.of Female 17(%)	6 (35.3%)	3 (17.6%)	2 (11.8%)	1 (5.9%)	3 (17.6%)	2 (11.8%)

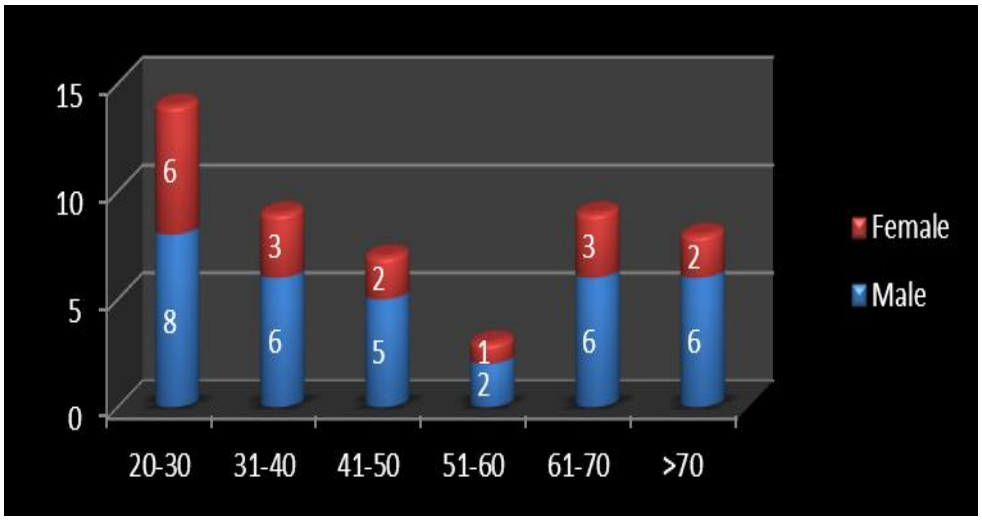

FIGURE – 2 Distribution of patients in MICU based on age

DISTRIBUTION OF PATIENTS IN MICU BASED ON DIAGNOSIS

Out of 50 patients in MICU, distribution of diagnosis in all patients are as follows, OP compound poisoning > Insecticide poisoning > Multiple diagnosis > Renal Failure > and rest of other diseases are all equal in distribution.**(Table-4, Figure-5)**

TABLE-4 Distribution of patients in MICU based on diagnosis

Diagnosis	Total No. of Male Patients (%)	Total No. of Female Patients (%)
OP Compound Poisoning, n=14	9(27.2%)	5 (29.4%)
Insecticide Poisoning, n=7	2(6.1%)	5 (29.4%)
Congestive Heart Failure, n=3	2(6.1%)	1 (5.9%)
Seizure Disorder, n=3	3(9.1%)	0 (0%)
ALD with Other Diseases, n=3	3(9.1%)	0 (0%)
Gastroenteritis with Dehydration, n =3	3 (9.1%)	0 (0%)
Renal Failure, n=5	3(9.1%)	2 (11.8%)
Multiple Diagnosis, n=9	6(18.1%)	3 (17.6%)
Other Diseases, n=3	2(6.1%)	1 (5.9%)

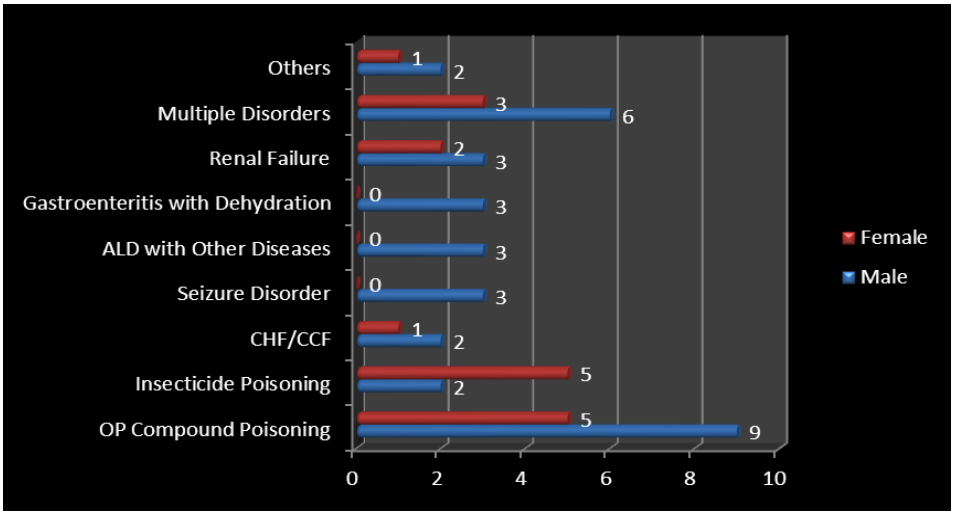

FIGURE- 3 Distribution of patients in MICU based on diagnosis

DISTRIBUTION OF PATIENTS BASED ON CAM-ICU CRITERIA & GENDER IN MICU

Out of 50 patients in MICU 31(62%) were CAM ICU+ve and CAM ICU –ve were 19 (38%), out of them male patients were 21 and female were 12 in CAM ICU +ve patients, and 10 male, 7 female in Delirium –ve patients. CAM ICU Positive were more than negative patients, out of which male are predominantly more than females**.(Table-6, Figure-5)**

TABLE-6 Distribution of patients based on CAM ICU & gender in MICU

DELIRIUM STATUS	Total No.of Patients (%)	Total No.of Male Patients (%)	Total No.of Female Patients (%)
CAM ICU +ve	31 (62%)	21 (63.6%)	10 (58.8%)
CAM ICU -ve	19 (38%)	12 (36.4%)	7 (41.2%)

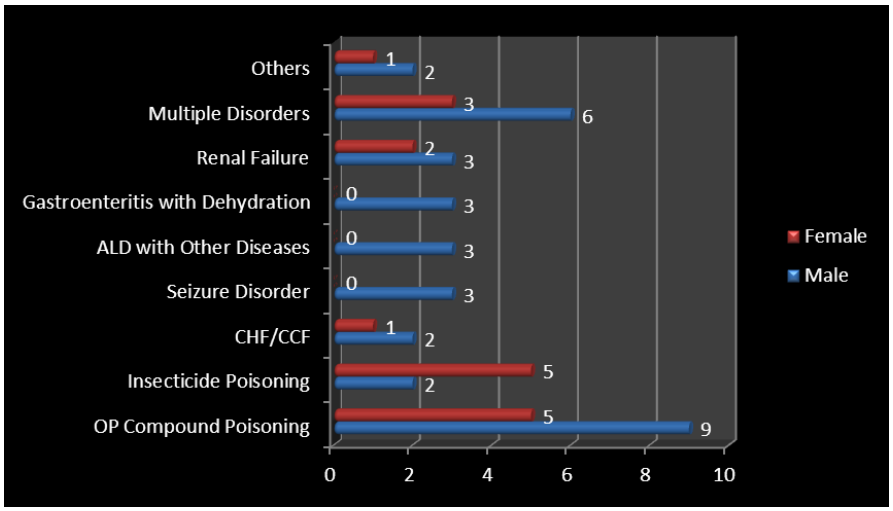

FIGURE-4 Distribution of patients based on CAM ICU & gender in MICU

DISTRIBUTION OF AGE IN MICU PATIENTS BASED ON CAM ICU POSITIVE CRITERIA

Out of 31 patients in MICU, the age group between 20-30 : male -2(9.5%), female-5 (50%),31-40,male-5,female-2,were relatively more when compared to other groups**.(Table-7, Figure-6).**

TABLE-7 Distribution of age in CAM ICU +ve patients in MICU

Total No.of Patients	20-30 (%)	31-40 (%)	41-5 (%)	51-6 (%)	61-70 (%)	>70 (%)
No.of Male 21(%)	2 (9.5%)	5 (23.7%)	4 (19.1%)	4 (19.1%)	3 (14.3%)	3 (14.3%)
No.of Female 10(%)	5 (50%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)	0 (0%)

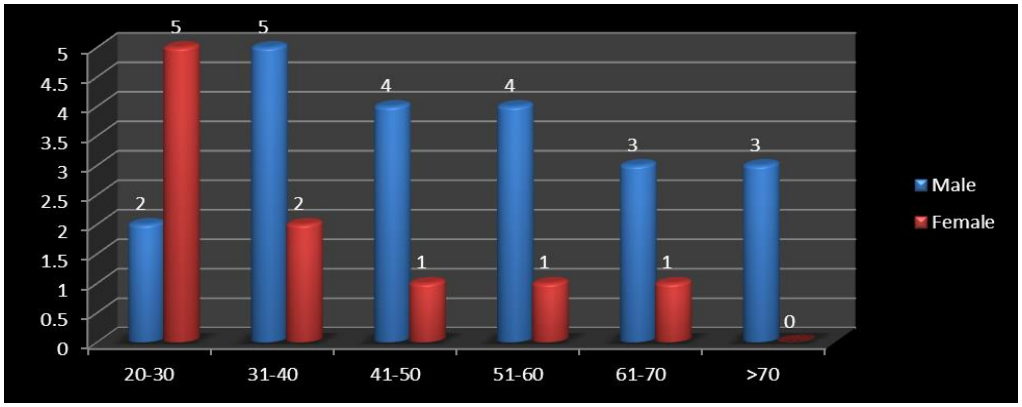

FIGURE-5 Distribution of age in CAM ICU +ve patients in MICU.

DISTRIBUTION OF DIAGNOSIS IN MICU PATIENTS BASED ON CAM ICU POSITIVE CRITERIA

Out of 31 delirium positive cases in MICU , distribution of diagnosis were as follows OP compound poisoning : male-3 , female 6, multiple diagnosis : male 6 , female-2 > CHF (3), Renal Failure(3),followed by insecticide poisoning (2), Seizure disorder (2), ALD with other diseases (2), gastroenteritis with dehydration (2).**(Table-8, Figure-7)**

TABLE–8 Distribution of diagnosis in MICU patients based on CAM ICU Positive Criteria

Diagnosis	Total No. of Male Patients 21(%)	Total No. of Female Patients 10 (%)
OP Compound Poisoning, n=9	3(14.4 %)	6 (60 %)
Renal Failure, n=3	2(9.5%)	1 (10%)
CHF	2 (9.5%)	1(10%)

Insecticide Poisoning, n=2	**2(9.5%)**	**0(0%)**
Seizure Disorder, n=2	**2(9.5%)**	**0 (0%)**
ALD with Other Diseases, n=2	**2(9.5%)**	**0 (0%)**
Gastroenteritis with Dehydration, n =2	**2(9.5%)**	**0 (0%)**
Multiple Diagnosis, n=9	**6(28.6%)**	**2 (20%)**

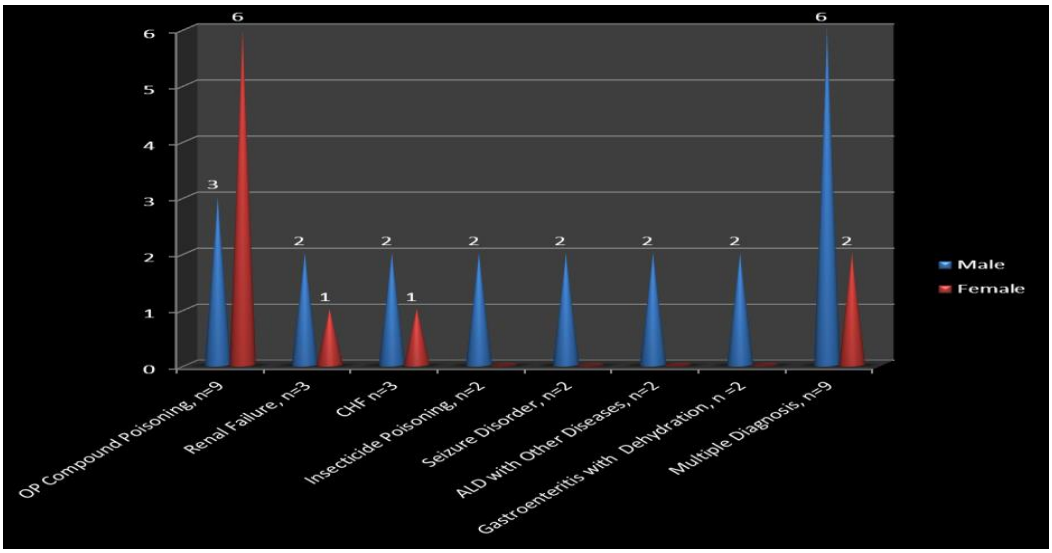

FIGURE -6 Distribution of diagnosis in MICU patients based on CAM ICU positive Criteria

COGNITIVE IMPAIRMENT STATUS OF CAM ICU +ve CASES BASED ON MMSE SCORES.

Out of 21 Delirium positive cases, cognitive impairement status were as follows mild : male-11 (52.3%),female (50%); severe : male-6 (28.6%), female-4 (40%); No Cognitive Impairement male-4 (19.1%), female 1 (10%). Mild > Severe > No Cognitive impairement. **(Table-9, Figure-8).**

TABLE.9 : Cognitive impairment status of CAM ICU +ve cases based on MMSE scores.

Total No. of Patients= 31	**Mild Cognitive Impairment**	**Severe Cognitive Impairment**	**No Cognitive Impairment**
Male n=21 (%)	11(52.3%)	6(28.6)	4 (19.1%)
Female n=10 (%)	5 (50%)	4 (40%)	1 (10%)

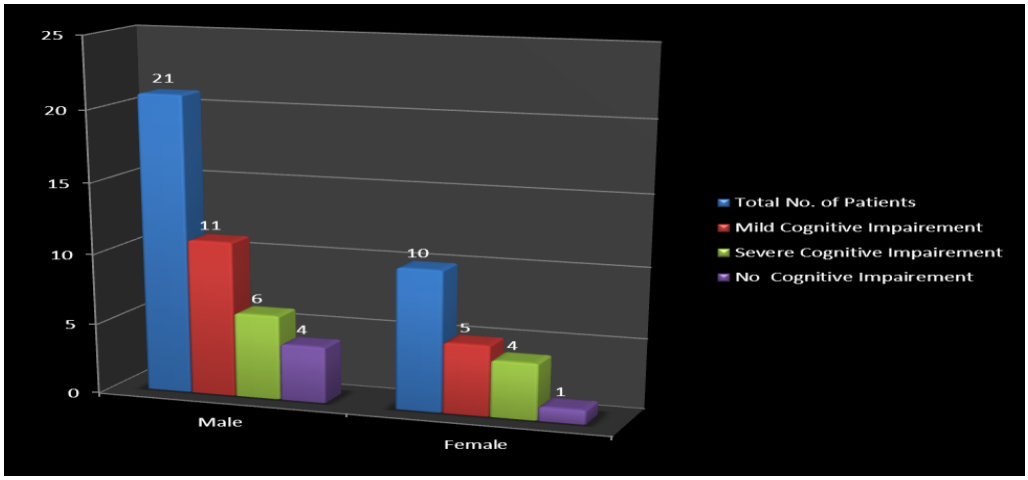

FIGURE. 7 Cognitive impairment status of CAM ICU +ve cases based on MMSE scores.

PATIENT DISTRIBUTION BASED ON AGE BY COGNITIVE IMPAIREMENT STATUS

Out of 26 cognitive impairment patients, mild & severe impairment patients based on age were as follows 20-30 : mild-4 (25%),Severe 1 (10%); 31-40 : mild 5 (31.2%),Severe 1 (10%); 41-50 : mild-3 (18.8%), severe-1 (10%); 51-60 : mild-2 (12.5%), severe-2 (20%); >60 : mild-2 (12.5%), severe-5 (50%). >60 age group were relatively more than other groups. **(Table-10, Figure-9)**

TABLE -10 Patient distribution based on age by cognitive impairment Status

Cognitive impairment status	20-30 (%)	31-40 (%)	41-50 (%)	51-60 (%)	>60 (%)
Mild cognitive impairment, n=16	4 (25%)	5(31.2%)	3(18.8%)	2(12.5%)	2(12.5%)
Severe cognitive impairment, n=10	1(10%)	1(10%)	1(10%)	2(20%)	5(50%)

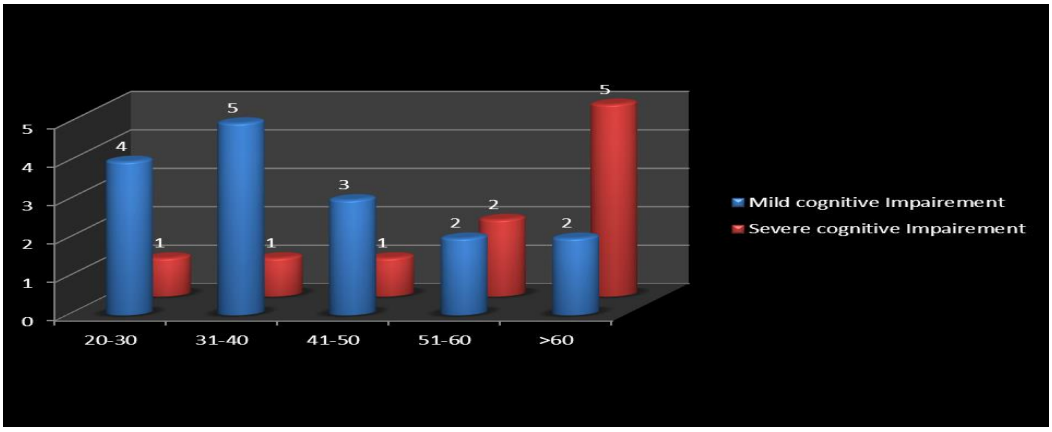

FIGURE.8 Patient distribution based on age by cognitive impairment Status

COGNITIVE IMPAIREMENT STATUS (OUTCOME) AFTER 1 MONTH OF DISCHARGE

After 1 month of discharge, all the 26 patients were assessed for cognitive impairment outcome, in which the outcome was positive (cognitive impairment) in 2 (12.5%) and negative (No Cognitive Impairment) in 14 (87.5%) of mild cognitive impairment patients and in severe cognitive impairment patients outcome was positive in 7 (70%), negative in 3 (30%). It clearly indicates that the cognitive impairment was positive in most of the patients who has also shown severe cognitive impairment during the MMSE while admitted. **(Table-11, Figure-10).**

TABLE-11: Cognitive impairment status after 1-month of discharge

Cognitive impairment status	Total No. of patients with Cognitive impairment n=26(%)	Outcome positive (cognitive impairment) after 1 month of discharge, n=9(%)	Outcome negative (No cognitive impairment)after 1 month of discharge n=17(%)
Mild cognitive impairment	16(61.5%)	2(12.5%)	14(87.5%)
Severe cognitive impairment	0(38.5%)	7 (70%)	3(30%)

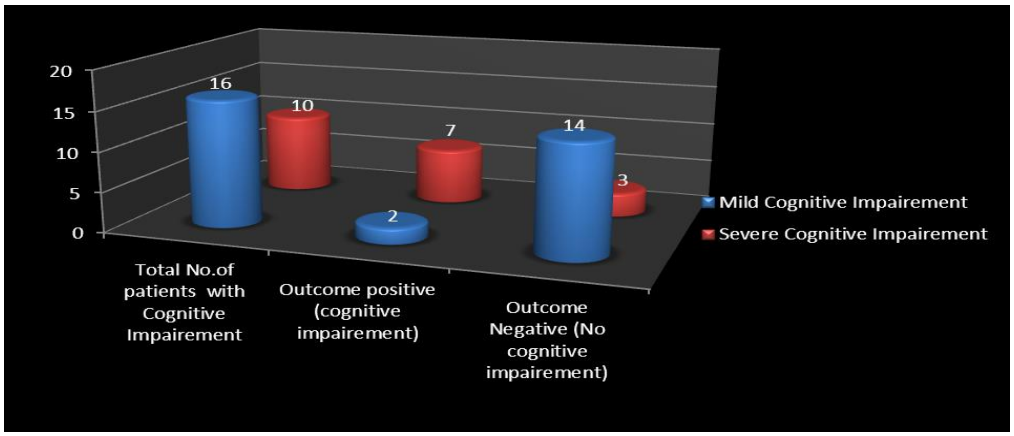

FIGURE.9 Cognitive impairment status after 1-month of discharge

COMPARING THE RESULTS OF PSYCHIATRY & MICU

Out of 100 patients in psychiatry & MICU, 24 (43.6%) were of delirium, 26(57.8%) were no delirium in psychiatry, and in MICU 31 (56.4%) were of delirium and rest 19 (43.2%) were no delirium. By comparing the results of both psychiatry and MICU, it was found that the most important clinical situation – Delirium was relatively more in MICU patients when compared with psychiatry inpatients. **(Table-12, Figure-11)**

TABLE -12 Comparing the results of psychiatry & MICU

Department	Total No. of Patients n=100(%)	Total No. of Delirium +ve cases n=55(%)	Total No. of Delirium -ve cases n=45(%)
Psychiatry	**50(50%)**	**24(43.6%)**	**26(57.8%)**
MICU	**50(50%)**	**31(56.4%)**	**19(43.2%)**

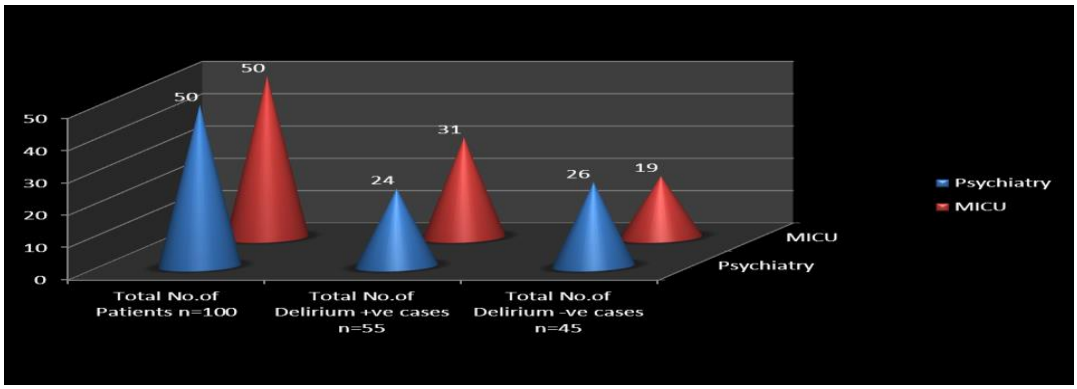

FIGURE- 10 Comparing the results of psychiatry & MICU

LENGTH OF HOSPITAL STAY ASSESSMENT IN MICU PATIENTS

Delirium plays a crucial role in prolongation of hospital stay, out of 50 patients admitted in MICU, Mean±SD in CAM ICU +ve (Delirium) patients were 5 ± 1.39, and 3 ± 1.24 in CAM ICU –ve (No Delirium) patients, which indicates that the delirium has a significant effect on prolongation of hospital stay in MICU patients.**(Table-13)**

TABLE 13: Length of hospital stay assessment in MICU patients

Total No. of Patients in MICU	Mean±S.D in CAM ICU +ve Patients, n=31	Mean±S.D in CAM ICU -ve Patients, n=19
n = 50	**5±1.39**	**3±1.24**

RELATIONSHIP BETWEEN BIOCHEMICAL PARAMETERS (CLINICAL INDICATORS) & DELIRIUM

Out of 50 patients admitted in MICU, all the patients has shown a significant relationship between the biochemical parameters and delirium, the Mean±SD for hemoglobin %, g/dL in delirium patients was 10.5±1.5 & in no delirium patients it was 12.1±1.9. Serum creatinine, mg/dL was 1.5±0.80 in delirium patients & 1.2±0.50 in no delirium patients, serum urea, mg/dL was 48±3.4 in delirium patients & 40±4.2 in no delirium patients, electrolytes Na+ was 131±3.5 in delirium patients and 139.2±3.9 in no delirium patients, K+ was 3.1±0.42 in delirium patients & 3.9±0.21 in no delirium patients. Out of all the biochemical parameters, hemoglobin %, serum creatinine, and electrolytes are found as clinical indicators of delirium.**(Table-14).**

TABLE-14 Clinical indicators of delirium

Biochemical Parameters	Mean±SD in CAM ICU +ve Patients	Mean±SD in CAM ICU -ve Patients
Hemoglobin %, g/dL	10.5±1.5	12.1±1.9
Serum creatinine, mg/dL	1.5±0.80	1.2±0.50
Serum urea, mg/dL	48±3.4	40±4.2
ELECTROLYTES Na+ K+	 131±3.5 3.1±0.42	 139.2±3.9 3.9±0.21

Delirium : n=31;No delirium : n=19; Hemoglobin % (Delirium : n=31;No delirium : n=18); Serum creatinine (Delirium : n=29;No delirium : n=16);Serum urea (Delirium : n=29;No Delirium : n=17);Electrolytes: Na+ (Delirium : n=25;No delirium : n=16); K+(Delirium : n=25;No delirium: n=16).

CONCLUSIONS

CAM ICU positive were more than negative patients ,out of which male are predominantly more than females, this shows that the patients who are critically ill have more tendency to develop delirium symptoms, this data shows the need for managing the delirium in MICU. Out of 31 patients in MICU, the age groups 20-30 and 31-40 are more admitted to MICU in MVJ ,This is solely due to the poison consumption (suicidal) in the younger age groups. The distribution of diagnosis in MICU Patients with CAM-ICU positive data shows that the OP poisoning patients are more likely to develop delirium, this is because a great loss of fluids in these patients, leading to electrolyte imbalance.[11]

Out of 31 delirium positive cases, mild and severe cognitive impairment patients are more, indicating the impact of delirium on the cognitive functioning. The results of age distribution in cognitive impairment shows that the younger patients have mild cognitive impairment and elder patients have severe cognitive impairment, due to OP poisoning and multiple diagnosis, respectively .

Further to assess the outcome of delirium after 1 month of discharge, MMSE results were categorized as no-cognitive impairment, mild cognitive impairment and severe cognitive impairment , no cognitive impairment patients were excluded for further analysis, mild and severe cognitive impairment patients were assessed for outcome, and the results showed out of 26 patients the outcome was positive (cognitive impairment) in 12.5% and negative (no cognitive impairment) in 87.5% of mild cognitive impairment patients and in severe

cognitive impairment patients outcome was positive in 70%, negative in 30% . The data indicates that the cognitive impairment was positive in most of the patients who has also shown severe cognitive impairment during the MMSE while admitted. This data indicates that the elderly people with multiple disorders have an impact on the cognitive impairment even after discharge; suggesting the need for the management of delirium in MICU patients as well as benefits like reducing the morbidity and mortality, by adequately following the elderly patients even after discharge. The incidence of delirium in MICU patients is relatively more, and the outcome was also positive (cognitive impairment present) in some of the cases, which explains the importance of identifying the delirium in MICU Patients. By comparing the results of both psychiatry and MICU, it was found that the one of the most important clinical situation – such as delirium was relatively more in MICU patients when compared with psychiatry inpatients . This is due to the patients in MICU are severely ill, and it proves that the severely ill patients are more likely to have delirium compared to psychiatry patients. By Assessment of the DRS-R 98 Scores at admission and at the time of discharge indicated that the DRS-R 98 Scores at the time of discharge were normal (no delirium) when compared with the scores at the time of admission . This shows that the complete recovery of delirium state in all the patients admitted to Psychiatry ward. Our study also indicated alteration in the level of biochemical parameters such as Hemoglobin % and electrolytes were decreased and serum creatinine was increased in delirium patients when compared to no delirium patients . This suggests that there might be some relationship between delirium & no delirium patients. Earlier studies also showed the relationship between delirium and biochemical parameters.

In addition, the biochemical parameters levels showed the extent of severity of the illness, and the association of the illness to the development of delirium, indicating that these parameters can be used as markers for determining the severity of delirium. However, further studies need to be done to establish a precise association between biochemical parameters levels and delirium. Delirium also plays a crucial role in prolongation of hospital stay. This has been proved by the results of the study. Out of 50 Patients admitted in MICU, Mean±SD in CAM ICU +ve (delirium) patients were 5 ± 1.39, and 3 ± 1.24 in CAM ICU -ve (no delirium) Patients ,which indicates that the delirium has a significant effect on prolongation of hospital stay in MICU Patients. The reason could be due to the altered level of consciousness and the physiological processes in delirium patients that could affect the prognosis of the therapy.

CONCLUSIONS

In view of the strong impact on patient morbidity and resource consumption, structural screening for delirium by a validated diagnostic instrument should be a part of routine daily critical care. Physician should have a clear idea on the symptoms of delirium and the immediate measures that has to be taken in patients with delirium. All the patients admitted to MICU should be adequately followed after the discharge for any cognitive impairment, as the study shows presence of cognitive impairment in MICU patients after 1 month of discharge. Further studies should demonstrate whether the implementation of these structural tools results in better patient care and outcome.

ACKNOWLEDGEMENTS

The Authors wish to thank the management, principal and staff of Krupanidhi College of Pharmacy, Bangalore and MVJ Medical and Research Hospital, Bangalore for their support to complete this work.

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