

# Prevalence Of Delirium And Its Determinants Among The Elderly Patients Admitted In The Secondary Hospital, Chittoor, Andhra Pradesh

Jp Grace Angeline<sup>1</sup>, Nirmala Margaret P<sup>2</sup>

Associate Professor, Medical-Surgical Nursing, Cmc Vellore Chittoor Campus Ap

Professor, Medical-Surgical Nursing, Cmc Vellore Chittoor Campus Ap

## Abstract

**Background:** Delirium is a common clinical syndrome frequently seen in hospitalised elderly patients. It is characterised by a sudden onset of inattention and acute cognitive dysfunction and it is highly associated with poor short-term and long-term outcomes. Accurate diagnosis of delirium is the first and most important step in delirium management.

**Aim:** With this objective, a cross-sectional observation study was conducted to assess the prevalence of delirium and its determinants among elderly patients aged 60 years and above admitted in the medical wards of a secondary hospital in Chittoor, Andhra Pradesh.

**Methods:** The demographic data of the participants was collected using a standard questionnaire. The Nursing Delirium Screening Scale (Nu-DESC) was used to assess the prevalence and severity of delirium. The checklist was based on the pre-disposing factors and the risk factors were used to assess the determinants of delirium.

**Results:** In this study, 29.7% of the study participants had delirium, of which 25.3% had severe delirium and 4.4% had mild delirium. Both men and women are equally affected with delirium but the severity is higher among the men than women. The study finding shows there is a significant association between the clinical data and the selected determinants. Especially it is significantly high among the visually challenged elders and the restrained participants.

**Keywords:** Elderly patients, Nurse Delirium scale, Delirium, Prevalence, Determinants.

Date of Submission: 15-12-2024

Date of Acceptance: 25-12-2024

## I. Introduction

Delirium is an acute and temporary alteration in consciousness that can persist for a duration ranging from several hours to potentially a few months if not addressed appropriately [1-3]. It commonly affects the cognitive function of elderly patients above 60 years.[1,4]. Regarding its prevalence among older patients, reports [5-7] show that it ranges from 16.7% in medical and surgical inpatient units to 71.0% in intensive care units with an even higher increase in prevalence in patients above 80 years of age. The factors contributing to this issue are numerous, with old age and neurocognitive disorders being the primary risk factors also, it is frequently associated with acute medical conditions, adverse reactions to medications, or complications arising from medical treatments. Currently, diagnosis is clinically based, relying on the identification of specific characteristics. Given the complex nature of the aetiology, multicomponent strategies appear to be the most promising in addressing the needs of patients. There is no unanimous evidence supporting the effectiveness of pharmacological interventions for either prevention or treatment [4].

The available evidence regarding delirium in the elderly population in India is limited. A prior investigation [8] conducted in Vellore indicated that the prevalence rates among elderly patients with hip fractures were 21.0%. Another study in Varanasi [9] on 400 elders diagnosed with delirium found that 65% were hypoactive delirium, 25.0% were hyperactive delirium, and 10% had the mixed type. In hypoactive delirium, the onset occurs abruptly, and the individual exhibits symptoms such as sluggishness, lethargy, and varying degrees of consciousness. This condition is frequently misinterpreted as depression. In cases of hyperactive delirium, patients may exhibit a swift transformation in behaviour from shifting from a state of extreme docility to abrupt instances of violence and aggression. The mixed type of delirium encompasses a combination of both characteristics, which can frequently present significant challenges [1,10]. Of course, the rate of detection of delirium in elder patients by nursing professionals is very low with up to 75% of cases going undetected. It is usually reported that dementia has worsened, resulting in inappropriate use of psychoactive medication resulting in further cognitive impairment [1,11,12]. Lack of recognition is often a result of a lack of knowledge on delirium,

nurses being unaware of precipitating factors for delirium, under-recognition of the hypoactive form and failure to recognize the implications associated with delirium.

Research has indicated that nurses' documentation of the mental status of patients affected with delirium tends to use general terms such as fluctuating mental status, lethargy, confusion, negative behaviour, delusion and restlessness rather than delirium [1,13]. Nurses dedicate more time to their patients compared to physicians, making them essential for the early identification of delirium. Their ability to monitor variations in consciousness, cognitive processes, and attention is significantly more effective, allowing them to commence early interventions for delirium in affected individuals. Growing evidence suggests that with suitable education and training, nurses can play a pivotal role in recognising and managing delirium in elderly patients admitted to healthcare facilities. Considering all these, the present study was undertaken to assess the prevalence of delirium and its determinants among elderly patients admitted to the medical wards in the secondary hospital, Chittoor, Andhra Pradesh.

## **II. Need And Objectives Of The Study**

Delirium is an acute disorder of attention and cognition, which is common among elderly people who are aged 60 years or older. It is serious, costly, under-recognized, and often fatal. Early identification of delirium through systematic assessment helps to find the underlying disorder and aids in the early rectification of the causes. Hence this research aims to do with the following objectives:

- 1) To assess the prevalence of delirium among elderly people
- 2) To identify the determinants of delirium among the study participants
- 3) To correlate the prevalence of delirium with the identified determinants
- 4) To associate the identified delirium determinants with the clinical variables

## **III. Methods**

A cross-sectional observation study was conducted for a period of one year from May 2023 to May 2024 in the medical wards which include the High dependency unit and medical general ward. Elderly adults with different medical surgical conditions are admitted for treatment and management. All inpatients admitted to the ward within 24 – 48 hours were assessed using the tool. The inclusion criteria consist of the willing participants of both genders aged at or above 60 years and patients who have a GCS (Glasgow Coma Scale) score of less than 8 were excluded from the study. In total, 158 patients willing to participate were enrolled in the study. The participant's first-degree relatives were informed about the study and their consent was obtained in the prescribed format.

The demographic data of the participants was collected using a direct interview method using a standard questionnaire. The Nursing Delirium Screening Scale (Nu-DESC) is a standardized tool used to assess the prevalence of delirium. It is an observational 5-item scale comprising disorientation, inappropriate behaviour, inappropriate communication, illusions/ hallucinations, and psychomotor retardation. Specifically, this tool measures psychomotor retardation which is used to measure inappropriate behaviour, inappropriate communication, illusions or hallucinations, and psychomotor retardation [14]. Each item is scored '0' if the feature is absent, '1' if the symptom is present, and '2' if the symptom is exceptionally distinct. A score  $\geq 2$  indicates a positive for delirium. On admission or once during the hospital stay, the study participants were assessed using the NU-DESC. The tool, checklist on determinants of delirium developed based on the previous research experience on delirium was used to explore the determinants of delirium among those with delirium. This tool was used at the time of assessment using the NU-DESC scale.

Collected data was analysed by using Statistical Package for Social Sciences (SPSS version 25.0). Data were presented as mean, standard deviation, median, interquartile range, frequency and percentage. Continuable variables were compared using the ANOVA (Analysis of Variance). Kruskal Wallis test was used to compare non-normally distributed continuous data between independent groups. Categorical variables were compared using the Pearson chi-square test. Significance was defined by P values less than 0.05 using a two-tailed test.

## **IV. Results And Discussion**

A cross-sectional observation study was conducted for one year to assess the prevalence of delirium and its determinants among the patients in the medical and surgical wards of CMC Vellore Hospital Chittoor Campus, Andhra Pradesh. Demographic data of the study subjects is shown in Table 1.

Assessment of the prevalence of delirium based on the demographic variables of study subjects indicated in general that the symptoms of delirium were absent in the majority (111 out of 158; 70.2%) of study subjects. However, the results revealed that the study subjects above 81 years of age group affected significantly. Notably, in this age group, out of 27 total study subjects (only 17.1% of the total study population), 9 study participants (33.3% of the affected population) were affected with the symptoms of delirium. Among these 29.6% of patients showed severe symptoms and the remaining 3.7% showed mild symptoms. Of participants in the 71-80 years age group, out of 66 (41.7% total study population), 23 patients (34.5% of the affected population) were affected.

Among these 30.3% were found with severe symptoms and the remaining 4.5% showed mild symptoms. However, from the 65 participants below the 70 years age group (41.1% of the total study population), only 15 patients (23.1% of the affected population) showed the symptoms of delirium. Among them, 12 patients (18.5%) had severe symptoms and 3 (4.6%) had mild symptoms. These results suggested that the prevalence of delirium in the age above 71 years is more prominent.

**Table 1: Distribution of participants based on the demographic variables and prevalence of delirium**

Variables	Group	Nursing Delirium Screening Scale						P value
		Absent		Mild		Severe		
		N	%	N	%	N	%	
Age	<70	50	76.9%	3	4.6%	12	18.5%	0.592
	71 - 80	43	65.2%	3	4.5%	20	30.3%	
	>81	18	66.7%	1	3.7%	8	29.6%	
Gender	Male	71	74.7%	1	1.1%	23	24.2%	0.031
	Female	40	63.5%	6	9.5%	17	27.0%	
BMI	Normal	87	68.0%	6	4.7%	35	27.3%	0.638
	Obese	12	85.7%	0	0.0%	2	14.3%	
	Underweight	12	75.0%	1	6.3%	3	18.8%	
Educational status	No formal	36	70.6%	3	5.9%	12	23.5%	0.794
	Primary	25	62.5%	3	7.5%	12	30.0%	
	High school	32	78.0%	1	2.4%	8	19.5%	
	Higher	10	71.4%	0	0.0%	4	28.6%	
	Professional	8	66.7%	0	0.0%	4	33.3%	
Occupation	Skilled	43	81.1%	2	3.8%	8	15.1%	0.095*
	Unskilled	68	64.8%	5	4.8%	32	30.5%	
Religion	Christian	9	56.3%	2	12.5%	5	31.3%	0.461
	Hindu	97	71.9%	5	3.7%	33	24.4%	
	Muslim	5	71.4%	0	0.0%	2	28.6%	
Type of Family	Joint	61	72.6%	3	3.6%	20	23.8%	0.740
	Nuclear	50	67.6%	4	5.4%	20	27.0%	

\*P<0.05 significant

Analysis based on gender revealed that the females were mostly affected. 23 out of 63 female patients (36.5% affected out of 39.9% of the total population) showed the symptoms of delirium. Among these, 17 (27%) showed severe symptoms 6 (9.5%) showed mild symptoms and in remaining 40 female patients had no symptoms. However, only 24 male study subjects (25.3% of affected out of 60.1% of the total population) were affected. Among them, 23 males showed severe symptoms and only one showed mild symptoms.

The BMI revealed, that all the categories (normal, underweight, and obese) showed the symptoms of delirium. However, the underweight and obese category was affected significantly. The results showed that 41 study participants out of 128 normal-weight study subjects (32% affected out of 81% of the total study population) showed the symptoms of delirium. Among them, 35 patients (27.3%) showed severe symptoms and 6 patients (4.7%) showed mild symptoms. However, 2 study participants from the obese group showed severe symptoms. It is worth noting here that only 14 patients were found as obese among 158 of the total sample. Likewise, 4 study participants out of 16 in a total sample from the underweight group showed the symptoms of delirium. It was 25.1% of the total affected population. Among them, 3 patients showed severe symptoms and one patient showed mild symptoms. These results indicated that obese and underweight are some of the risk factors associated with delirium.

Analysis based on educational status revealed that the prevalence rate of delirium was high in patients who come under the higher secondary and professional categories. These two categories of patients constitute 28.6% and 33.3% of the total delirium-detected population respectively. Analysis based on the occupation, religion and family set-up of study subjects revealed that the prevalence rate was high among the unskilled category, Christian patients come from the nuclear family set-up. In the delirium-detected population, the unskilled category constitutes 35.3%, likewise, 43.8% were Christian and 32.4% belonged to the nuclear family.

**Table 2: Prevalence of delirium based on personal and past medical data**

Analysed aspect	Response	Nursing Delirium Screening Scale						P value
		Absent		Mild		Severe		
		N	%	N	%	N	%	
Previous recent Hospitalization	No	66	71.0%	3	3.2%	24	25.8%	0.678
	Yes	45	69.2%	4	6.2%	16	24.6%	
Previous history of delirium If Yes,	No	107	70.9%	7	4.6%	37	24.5%	0.498
	Yes	4	57.1%	0	0.0%	3	42.9%	
	Yes	0	0.0%	0	0.0%	1	100.0%	
Type of living	Dependent	33	67.3%	3	6.1%	13	26.5%	0.847
	Independent	67	72.0%	4	4.3%	22	23.7%	
	Partially dependent	9	64.3%	0	0.0%	5	35.7%	
	Partially Independent	2	100.0%	0	0.0%	0	0.0%	
Diet	Normal	67	74.4%	3	3.3%	20	22.2%	0.390
	Therapeutic	44	64.7%	4	5.9%	20	29.4%	
At home use eye reading glass	No	63	70.0%	3	3.3%	24	26.7%	0.697
	Yes	48	70.6%	4	5.9%	16	23.5%	
At home using hearing aids	No	103	71.0%	7	4.8%	35	24.1%	0.417
	Yes	8	61.5%	0	0.0%	5	38.5%	
At home using crutches for ADL	No	97	71.9%	6	4.4%	32	23.7%	0.642
	Sometimes	3	50.0%	0	0.0%	3	50.0%	
	Yes	11	64.7%	1	5.9%	5	29.4%	

\*P<0.05 significant

The personal and past medical data revealed that the prevalence rate of delirium was high in patients (30.8%) who had a history of previous recent hospitalization compared with the patients who were not admitted (29%). It was also found that the majority of study subjects (a total of 32.6%) found with delirium had run a dependent type of living. Among the study participants, 35.3% were taking a therapeutic diet and 25.5% were taking a normal diet. Notably, only a slight difference was found between the patients with delirium for the question about the usage of spectacles for reading. 30% of patients said “No” and 29.4% said “Yes” to this question. However, the regular usage of hearing aids (38.5% of patients) and occasional usage of crutches (50% of patients) were found in the majority of delirium-affected patients.

**Table 3: Prevalence of delirium based on electrolytes and GRBS level in study subjects**

Analysed parameter	Status	Nursing Delirium Screening Scale						P value
		Absent		Mild		Severe		
		N	%	N	%	N	%	
Sodium	Hyper	1	33.3%	0	0.0%	2	66.7%	0.592
	Hypo	63	70.8%	4	4.5%	22	24.7%	
	Normal	47	71.2%	3	4.5%	16	24.2%	
Potassium	Hyper	11	73.3%	1	6.7%	3	20.0%	0.865
	Hypo	20	64.5%	1	3.2%	10	32.3%	
	Normal	80	71.4%	5	4.5%	27	24.1%	
sodium bicarbonate	High	25	67.6%	2	5.4%	10	27.0%	0.844
	low	18	64.3%	2	7.1%	8	28.6%	
	Normal	68	73.1%	3	3.2%	22	23.7%	
blood glucose	High	5	12.5%	26	65.0%	9	22.5%	0.043*
	Low	0	0.0%	4	100.0%	0	0.0%	
	Normal	2	1.8%	81	71.1%	31	27.2%	

\*p<0.05 significant

In the affected population, the prevalence of delirium was high in patients with hypernatremia. 66.7% of the affected population reported this imbalance. Likewise, in terms of potassium and sodium bicarbonate levels, the majority were found with hypo level. 35.5% of delirium delirium-affected population was affected with hypokalemia also, while, 35.7% were found with low sodium bicarbonate levels. The prevalence of high-level general random blood sugar had 65 % of mild delirium was found significant in the delirium-affected population.

**Table 4: Association between the Prevalence and determinants of delirium**

Criteria analysed		Nursing Delirium Screening Scale						P value
		Absent		Mild		Severe		
		N	%	N	%	N	%	
GCS on admission	>8and <14	2	10.0%	0	0.0%	18	90.0%	<0.0001*
	15/15	109	79.0%	7	5.1%	22	15.9%	
Admission to HDU/ Ward	HDU	28	62.2%	3	6.7%	16	31.1%	0.075
	MW	83	74.8%	4	3.6%	24	21.6%	
Transfer from one ward to another ward	No	107	70.9%	6	4.0%	38	25.2%	0.403
	Yes	4	57.1%	1	14.3%	2	28.6%	
Restrains	No	105	73.9%	7	4.9%	30	21.1%	0.002*
	Yes	6	37.5%	0	0.0%	10	62.5%	
Pain with pain score	No pain	91	69.5%	7	5.3%	33	25.2%	0.469
	Pain	20	74.1%	0	0.0%	7	25.9%	
Functional impairment	No	3	3.2%	74	78.7%	17	18.1%	0.019*
	Yes	4	6.3%	37	57.8%	23	35.9%	

\*P<0.05 significant

The significance of delirium is present among the patients who had less than 14 and more than 8 GCS. Also, study participants who were restrained had severe delirium (62.5%) and participants who had functional impairment showed mild to severe delirium as 57.8% and 35.9%.

**Table 5: Prevalence of delirium and determinants based on medication usage and personal habits**

Medications usage		Nursing Delirium Screening Scale						P value
		Absent		Mild		Severe		
		N	%	N	%	N	%	
Sedatives	No	110	71.9%	7	4.6%	36	23.5%	0.017*
	Yes	1	20.0%	0	0.0%	4	80.0%	
Antipsychotic drugs	No	110	70.5%	6	3.8%	40	25.6%	0.006*
	Yes	1	50.0%	1	50.0%	0	0.0%	
Narcotics	No	110	71.0%	7	4.5%	38	24.5%	0.247
	Yes	1	33.3%	0	0.0%	2	66.7%	
Anticholinergic Drugs	No	109	69.9%	7	4.5%	40	25.6%	0.651
	Yes	2	100.0%	0	0.0%	0	0.0%	
Corticosteroids	No	101	72.1%	4	2.9%	35	25.0%	0.023*
	Yes	10	55.6%	3	16.7%	5	27.8%	
Polypharmacy	No	106	70.2%	7	4.6%	38	25.2%	0.837
	Yes	5	71.4%	0	0.0%	2	28.6%	
Withdrawal of alcohol / Abuse	No	109	71.2%	7	4.6%	37	24.2%	0.187
	Yes	2	40.0%	0	0.0%	3	60.0%	

**Table: 6 Association between determinants and the prevalence of delirium**

		Nursing Delirium Screening Scale						P value
		Absent		Mild		Severe		
		N	%	N	%	N	%	
Hearing impairment	No	101	71.6%	7	5.0%	33	23.4%	0.213
	Yes	10	58.8%	0	0.0%	7	41.2%	
vision impairment	No	80	76.2%	4	3.8%	21	20.0%	0.059*
	Yes	31	58.5%	3	5.7%	19	35.8%	
Acute Stroke	No	108	70.1%	7	4.5%	39	25.3%	0.907

Intracranial Haemorrhage	Yes	3	75.0%	0	0.0%	1	25.0%	0.706
	No	110	70.5%	7	4.5%	39	25.0%	
Meningitis,	Yes	1	50.0%	0	0.0%	1	50.0%	0.808
	No	110	70.1%	7	4.5%	40	25.5%	
Encephalitis	Yes	1	100.0%	0	0.0%	0	0.0%	0.808
	No	110	70.1%	7	4.5%	40	25.5%	
Infections	Yes	21	58.3%	2	5.6%	13	36.1%	0.200
	No	90	73.8%	5	4.1%	27	22.1%	
Severe Acute Illness	Yes	16	57.1%	2	7.1%	10	35.7%	0.240
	No	95	73.1%	5	3.8%	30	23.1%	
Anaemia	Yes	19	63.3%	2	6.7%	9	30.0%	0.609
	No	92	71.9%	5	3.9%	31	24.2%	
Dehydration	Yes	9	47.4%	1	5.3%	9	47.4%	0.055*
	No	102	73.4%	6	4.3%	31	22.3%	
Constipation	Yes	25	59.5%	2	4.8%	15	35.7%	0.183
	No	86	74.1%	5	4.3%	25	21.6%	
Urinary retention	Yes	7	53.8%	0	0.0%	6	46.2%	0.165
	No	104	71.7%	7	4.8%	34	23.4%	
Poor Nutritional Status	Yes	12	48.0%	1	4.0%	12	48.0%	0.017
	No	99	74.4%	6	4.5%	28	21.1%	
Fracture Or Trauma	Yes	1	50.0%	0	0.0%	1	50.0%	0.706
	No	110	70.5%	7	4.5%	39	25.0%	
Emotional distress	Yes	19	45.2%	3	7.1%	20	47.6%	<0.0001*
	No	92	79.3%	4	3.4%	20	17.2%	
Sustained sleep deprivation	Yes	22	51.2%	3	7.0%	18	41.9%	0.006*
	No	89	77.4%	4	3.5%	22	19.1%	

\*p < 0.05 significant

Assessment of the presence of other diseases and disorders in the delirium-affected population revealed that the majority of the delirium-affected population had hearing (41.2%) and vision impairment (41.5%), affected with intracranial haemorrhage (50%), reported with certain infections (41.7%) but not with meningitis, encephalitis etc. Some severe acute illness (42.8%), anaemia (36.7%), dehydration (52.7%), constipation (40.5%), urinary tract infection (46.2%), fracture or trauma (50%), emotional distress (54.7%) sustained sleep deprivation (48.9%) were found in the affected population. Poor nutritional status was prevalent (52%) among the affected population. The association between delirium and determinants are found to be in Visually challenged participants, Dehydrated subjects, and persons who had emotional distress and sleep-deprived participants.

## V. Conclusion

The present study conducted to assess the prevalence of delirium and its determinants in the selected patient population of the secondary hospital, in Andhra Pradesh revealed significant data. Notably, a significant rate of prevalence of delirium was found in the age above 71 years. Females, underweight and obese category were mostly affected. The prevalence rate of delirium was high in patients who come under the higher secondary and professional educational category. The majority of the delirium-affected population had a history of previous recent hospitalization, ran a dependent type of living, taken a therapeutic diet, regularly used a hearing aid and occasionally used crutches. The prevalence of delirium was high in patients with hypernatremia, hypokalemia, low sodium bicarbonate and general random blood sugar levels. . The GCS score was abnormal in the majority of the affected population and mostly admitted in either ICU or HDU. The majority of the affected population was transferred from one ward to another ward and needed restraints, had normal pain score and functional impairment. The majority used sedatives, antipsychotic drugs, narcotics and corticosteroids. The majority of the delirium-affected population had hearing and vision impairment, poor nutritional status, intracranial haemorrhage, certain infections, some severe acute illness, anaemia, dehydration, constipation, urinary tract infection, fracture or trauma, emotional distress and sustained sleep deprivation. Importantly, the present study was a cross-sectional observation study, conducted among the patients of medical and surgical wards and the patients with end-stage diseases were not included in the study, of course, all these are certain limitations of the present study. However, a more focused longitudinal observational study in the future may give more significant data.

## References

- [1] Varghese Nc, Macaden L, Premkumar B, Mathews P, Saravanan Kumar. Delirium In Older People In Hospital: An Education Programme. British Journal Of Nursing, 2014; 23(13): 704 709
- [2] Anjana Babu Tv, Saleem Tk, Ramesh K. Prevalence Of Delirium Among Older Adults In A Tertiary Care Referral Hospital In Kerala. Kerala Journal Of Psychiatry, 2021; 34(1): 27-34

- [3] Grover S, Avasthi A. Clinical Practice Guidelines For The Management Of Delirium In The Elderly. *Indian Journal Of Psychiatry*, 2018; 60(Suppl. 3): 329-340
- [4] Iglseider B, Fruhwald T, Jagsch C. Delirium In Geriatric Patients. *Wien Med Wochenschr*, 2022; 172: 114-121. Doi: 10.1007/S10354-021-00904-Z
- [5] Pisani Ma, Murphy Te, Van Ness Ph, Araujo Kl, Inouye Sk. Characteristics Associated With Delirium In Older Patients In A Medical Intensive Care Unit. *Archives Of Internal Medicine*, 2007; 167(15): 1629-1634.
- [6] Ryan Dj, O'regan Na, Caoimh Ro, Clare J, O'connor M, Leonard M, Mcfarland J, Tighe S, O'sullivan K, Trzepacz Pt, Meagher D, Timmons S. Delirium In An Adult Acute Hospital Population: Predictors, Prevalence And Detection. *Bmj Open*, 2013; 3(1): E001772. Doi: 10.1136/Bmjopen-2012-001772. [Pmid: 23299110].
- [7] Erden Aki O, Derle E, Karagol A, Turkyilmaz C, Taskintuna N. The Prevalence And Recognition Rate Of Delirium In Hospitalized Elderly Patients In Turkey. *International Journal Of Psychiatry In Clinical Practice*, 2014; 18(1): 52-57. Doi: 10.3109/13651501.2013.865754. [Pmid: 24236908].
- [8] Chrispal A, Mathews Kp, Surekha V. The Clinical Profile And Association Of Delirium In Geriatric Patients With Hip Fractures In A Tertiary Care Hospital In India. *The Journal Of The Association Of Physicians Of India*, 2010; 58: 15-19. [Pmid: 20649093].
- [9] Khurana V, Gambhir Is, Kishore D. Evaluation Of Delirium In Elderly: A Hospital-Based Study. *Geriatrics & Gerontology International*, 2011; 11(4): 467-473. Doi: 10.1111/J.1447-0594.2011.00710.X. [Pmid: 21592270].
- [10] King A, Gratrix J. Delirium In Intensive Care. *Continuing Education In Anaesthesia Critical Care & Pain*, 2009; 9(5): 144-147. Doi: 10.1093/ Bjaaccp/Mkp023
- [11] Davis D, MacLulich A. Understanding Barriers To Delirium Care: A Multicentre Survey Of Knowledge And Attitudes Amongst Uk Junior Doctors. *Age Ageing*, 2009; 38(5): 559-563. Doi: 10.1093/Ageing/Afp099. [Pmid: 19592539].
- [12] Duffin C. Professionals' Failure To Spot Delirium Prompts Guidance. *Nursing Older People*, 2010; 22(7): 6-7. Doi: 10.7748/Nop.22.7.6.S9. [Pmid: 20882776].
- [13] Steis Mr, Fick Dm. Delirium Superimposed On Dementia: Accuracy Of Nurse Documentation. *Journal Of Gerontological Nursing*, 2012; 38(1): 32-42. Doi: 10.3928/00989134-20110706-01. [Pmid: 21761816].
- [14] Gaudreau J-D, Gagnon P, Harel F, Tremblay A, Roy M-A. Fast, Systematic, And Continuous Delirium Assessment In Hospitalized Patients: The Nursing Delirium Screening Scale. *Journal Of Pain And Symptom Management*, 2005; 29(4): 368-375. Doi:10.1016/J.Jpainsymman.2004.07.009
- [15] Peter Nydahl, Keibun Liu, Giuseppe Bellelli, Julie Benbenishty, Mark Van Den Boogaard, Gideon Caplan, Chi Ryang Chung, Muhammed Elhadi, Mohan Gurjar, Gabi Heras-La Calle, Magdalena Hoffmann, Marie-Madlen Jeitziner, Karla Krewulak, Tanya Mailhot, Alessandro Morandi, Ricardo Kenji Nawa, Esther S Oh, Marie O Collet, Maria Carolina Paulino, Heidi Lindroth, Rebecca Von Haken, The Wdad Study Group, A World-Wide Study On Delirium Assessments And Presence Of Protocols, *Age And Ageing*, Volume 53, Issue 7, July 2024, Afae129, <https://doi.org/10.1093/ageing/afae129>