Research Paper

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Etiological Risk factors , Psycho pathological symptoms and Sleep disturbances in Hyperactive and Hypoactive Delirium- An Original Research

Medical Science

KEYWORDS : Hyperactive and hypoactive delirium,attributable risk factors

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ABSTRACT

Background: Delirium is an etiologically non-specific syndrome, characterised by disturbance in cognition with fluctuation consciousness. The interrelationship of delirium and their Attributable risk factors with psychopathological factors have been studied in west. However no comprehensive study has been published from this part of world.
Aims and objectives: To assess Attributable risk factors and psychopathological factors in hyperactive and hypoactive delirium.
Material and methods: 40 DSM IV TR cases of Delirium including Hypoactive and Hyperactive Delirium and 40 other patients (including psychiatric patients) were studied as controls. Checklist of etiological factors (CLEF), which was specifically designed for the study were administered to the patients and Memorial Delirium Assessment Scale were administered to each patient. Categorical parameters were evaluated by means of chi square and Fischer's test as applicable
Results: The mean age of study and control group was 27.85 and 33.10 respectively. 70% patients had hyperactive delirium while 30% was having hypoactive delirium. Pattern of attributing factors appear to be quiet different in both the groups. Impaired liver function test (89%) and ICU environment (58%) were the main attributing factors in hyperactive and hypoactive delirium respectively. Out of 40 controls there were 31 were psychiatric patients. Psychotic symptoms were the majority (30%). formed the bulk. Delusions were found more in the control group (60% vs. 35%). Study group had more illusions (33% vs 10%) Visual hallucination 75% vs. 63% and auditory hallucinations (83% vs 57%). w Delirium with psychosis had more cognitive impairment in comparison to delirium without psychosis.($p<0.001$).
Conclusion: Hyperactive and hypoactive delirium appears to be two distinct subtypes with different pattern of psychopathology and attributable risk factors.

INTRODUCTION : Delirium is an acute confustional state caused due to various direct or indirect cerebral insults. Delirium is currently conceptualized both as a disease and a syndrome .[1] Two types of delirium have been identified: Hyperactive delirium is characterized as agitation, increased speech, irritability and hyperactivity whereas hypoactive delirium is characterized by withdrawal, lethargy and reduced arousal. [2] The pathophysiology is poorly understood. [3] Multiple aetiologies for delirium may funnel into final common neural pathway. Alteration in the phenomenological presentation of delirium in the elderly is not well studied. [4] The hyperactive and hypoactive delirium have different precipitant causes [5]. The incidence of delirium varies with hospital setting, age, disease, psychosocial variables. The incidence could be as high as 50% . Francis (1999) et al reported an incidence of 12-14 % .[6] Trazepacz and Meager (2005)et al summarized the psychotic symptoms in form of perceptual disturbances , delusions, and thought disorders .[7] Sleep wake disturbances that include fragment sleep, reversal of normal cycle and sleeplessness, psychomotor behaviour in the form of hypoactive and hyperactive and mixed behaviour. However no comprehensive studies about this common condition have been carried out in India. In view of the above a comprehensive study to investigate the etiological underpinnings as well as psychopathological manifestations has been undertaken. To study psychopathological symptoms and to assess the etiological contributions of underlying systemic disturbances in delirium in a general hospital setting.

MATERIALS AND METHOD

The study was conducted at Shri Maharaja Singh Hospital . 40DSM-IV TR (9) identified cases of delirium drawn from various departments of the hospital formed the study group and Equal number of patients (including psychiatric patients) without delirium formed the control.

INCLUSION CRITERIA

- Patients 18 years and above.
- Any sex.
- Any educational status.
- Consent to participate in the study.
- Permission by the primary medical caregiver.

EXCLUSION CRITERIA

- Patient is too incapacitated to participate in the study due to poor medical status.
- Grossly disturbed and excited patients

Detailed mental status evaluation was carried out to establish the diagnosis of the delirium. Patients characterised by restlessness, hypervigilance, rapid speech, irritability and combativeness were diagnosed as hyperactive delirium. Whereas patients characterised by psychomotor retardation and apathy were diagnosed as hypoactive delirium. Cogniyive status estimation test (CSET) and checklist of etiological factors (CLEF), which were specifically designed for the studywere administered to the patients. Memorial Delirium Assesment Scale (MDAS) was also administered to each patient. All assessment were carried out three times in 24 hour cycle of day and night.

STATISTICAL EVALUATION

All continuous variables were subjected to tests of significance as appropriate. Correlation between cognitive variables and symptomatology were assessed by means of linear correlations (Pearson's Product Moment Correlation). Categorical param-

eters were evaluated by means of chi square and Fischer's test as applicable

RESULTS

The mean age of study group was 27.85 with a S.D. of 13.73. Whereas the mean age of control was 33.10 with a S.D. of 11.26. (table 1)Out of 40 control there were 31 were psychiatric patients. Psychotic symptoms were the majority(30%). In the study group drug dependence cases formed the bulk.(table 2)

The mean total cognitive score of the study is 24.8 which is much less than that of control group(62.3). This difference is highly significant statistically. Table 4,5 shows the mean total cognitive score of the study (with and without psychosis)

The mean MDAS score was 22.13 and 23 in hyper and hypoactive delirium respectively (table 3).Out of 40 cases 28(70%) were found to be hyperactive delirium while 12(30%) were having hypoactive type delirium. Delirium cases with psychosis had highly significant cognitive impairment in comparison with delirium cases without psychosis.(table 4 & 5)

Delusions were found more in the control group (60% vs 35%). Study group had more illusions(33% vs 10%) and auditory hallucinations(83% vs 57%).(table 6) Study group had more hallucination 48 % vs. 6% while the control had delusion and hallucination together in comparison to study group. Difference was statistically table 9

Pattern of attributing factors appear to be quiet different in both the groups. Impaired liver function test (89%) and ICU environment (58%) were the main attributing factors in hyperactive and hypoactive delirium respectively.(table 7)

Reversal of sleep wake cycle, nocturnal worsening of symptoms, disturbing dreams were quite prominent in study group. There is no statistical significant difference in sleep lost between control group and study group. Reversal of sleep wake cycle, nocturnal worsening of symptoms, disturbing dreams were quite prominent in study group. Table 8

Table 1 : Table Showing mean age of study and control patients.

	Mean	S.D.
Study , (N=40)	27.85	13.73
Control (N=40)	33.10	11.26

t=1.68 Df=78 p>0.05 NS

Table 2 : Table Showing diagnoses of study and control patients.

S. NO.	Diagnosis	Control , N(%)	Study group N(%)
1	Drug and alcohol dependence	8(20%)	27(67.5%)
2	Schizophrenia	10(25%)	3(7.5%)
3	Psychosis NOS	2(5%)	0(0%)
4	Mood disorder	10(25%)	0(0%)
5	Neurosis	1(2.5%)	0(0%)
6	Trauma	7(17.5%)	8(20%)
7	Diabetes mellitus	4(10%)	4(10%)
8	Infections	2(5%)	1(2.5%)
9	Tumors	1(2.5%)	1(2.5%)
10	Degenerative disorders	0(0%)	(0%)
11	Post operative	0(0%)	3(7.5%)
12	Seizures	0(0%)	2(5%)
13	Hospital environment(ICU)	0(0%)	15()

Table 3: Table Showing MDAS (Memorial Delirium Assessment Scale) scores in types of delirium

	mean	S.D.
Hyperactive	22.13	2.61
Hypoactive	23	1.59

t= 0.88 Df=38 p>0.05

Table 4: Table Showing Total Cognitive score in delirium with psychosis

	Mean (day) S.D.	Mean (night) S.D.	
Study, N=34	24.68 6.28	18.97 4.09	t=4.71 P<0.001***
Control , N=21	64.3 4.1	64.19 3.83	t= 0.63, p>0.05
	t=25.23, Df=53, P<0.001***	t=40.01, Df=53 P<0.001***	

***** Very highly significant**
**** Highly significant**

Table 5 : Table Showing Total Cognitive score in delirium without psychosis

	Mean (day) S.D.	Mean (night) S.D.	
Study N=6	21.3 7.03	16.5 3.94	t=1.46P>0.05
Control,N=19	67.84 2.43	67.26 2.38	t= 0.47, p>0.05
	t=23.6,Df=23 P<0.001***	t=36, Df=23 P<0.001***	

***** Very highly significant**
**** Highly significant**

Table 6 : Table Showing Psychopathological symptoms

	Delusions	illusions	Auditory hallucinations	Visual hallucinations	Other hallucinations
Study, N=40	14(35%)	13(33%)	33(83%)	30(75%)	2(5%)
Control N=31	18(60%)	3(10%)	17(57%)	19(63%)	0(0%)
	X^2=5.66 Df=1 P<0.02	X^2=4.62 Df=1 P<0.05	X^2=4.87* Df=1 P<0.05	X^2=0.73 Df=1 P<0.10 NS	X^2=0.71 Df=1 P<0.10 NS

*** significant**

Table 7 : Table Showing Incidence attributable factors of delirium subtypes

Hyperactive delirium	Hypoactive delirium
Impaired LFT's 89%	ICU environment 58%
Excess alcohol intake 86%	Hypertension 16%
Alcohol withdrawl 82%	Seizure 18%
Administration of trihexyphenydyl 75%	Infection 33%
Electrolyte imbalance 50%	Diabetes mellitus 18%
	Traumatic brain injury 50%

Table 8 : Table Showing sleep disturbance .

	Reversal of sleep wake cycle	Nocturnal worsening of symptoms	Disturbed dreams and night mares	Total Sleep loss
Cases	38	36	19	7
Control	27	2	2	2
	X2=9.92 P<0.001	X2=55.25 P<0.001	X2=16.52 P<0.001	X2>2 P .05

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Table 9: Table Showing Delusions and Hallucination..

	Delusions and Hallucination	Delusion	Hallucination
Study group	14 (35%)	0 (0%)	19 (2%)
Control group	18 (58%)	1 (3%)	2(6%)
	X2=4.95 P<0.005		X2=7.31, P<0.001***

Discussion:

Delirium continues to be understudied, under recognised and under diagnosed and misdiagnosed as depression by non-psychiatrists .[8] Misdiagnosis is more when delirium is hypoactive and when patients are referred from intensive care settings .[9] It was noted in our study that the attitude of medical professional and paramedical staff was rather negative and concrete. This study however appears to have sensitized some of the non-psychiatric medical staff to the importance of understanding delirium.

The mean age of the study group was 27 years. Cutting et al (1987) however noted that average age of delirium patient was 57.4 yr. our study was done on young adults, other studies focused on delirium in elderly patients.[10].The author is of the view that this study is first of its kind, which focuses on psychopathological symtoms in delirium patient in young adults., none of the studies appeared to have delirium as its primary area of investigation. Most of the studies conducted kept delirium occurring in old age patients as the area of interest.[3,11]

70% of the cases in our study group had hyperactive delirium. There was no mixed type. Fann et al reported 86% hyperactive and 40% mixed type of delirium .[12] Liptzin et al reported 15% hyperactive and 52% mixed type.[13] Our results are in contrast to Peterson et al (2003) who found only 4 cases of hyperactive delirium among 398 delirious patients.[14] Predominantly mixed type was also reported by others .[15] However all these studies were related to old and debilitated patients. Moreover our study had large number (67%) of alcohol withdrawal delirium which is known to be hyperactive.[3,4]

Electrolyte imbalance, impaired liver function test, alcohol withdrawal, anticholinergic drugs are well known risk factors for delirium .[3] The same risk factors were also present in patients with delirium in our study. However pattern of attributing factors appear to be quiet different in both the groups. Impaired LFT's (89%), Excess alcohol intake (86%), Alcohol withdrawal (82%), administration of trihexyphenydyl (75%) were noted to be more prominent in cases of hyperactive delirium while ICU environment (50%), Diabetes Mellitus (18%), seizures (18%), hypertention (16%), TBI (50%) and infections (33%) were more prominent in hypoactive delirium.

The psychopathological symptoms in delirium occur in the form of delusions, perceptual disturbances and affective symptoms.[16] The present study reveals high rates of auditory hallucinations and relatively less visual hallucinations in delirium patients. In fact delirium differs from other psychiatric patients in relation to auditory hallucinations while the incidence of visual hallucinations is comparable in the both groups. This is in conformity with cutting [10] and Solai.[3] . Our control group had more delusion per person and wider variety. Though this aspect has not been studied this might be because our control group had more psychiatric patients. ([2, 3,4 ,13,10,)]

Total sleep loss was found to be comparable in both groups .However reversal of sleep wake cycle (95%) .Nocturnal worsening of symptoms and distressing dreams (45%) N were prominent in delirium cases .Sleep disturbance have not been adequately documented in literature . [10, 14] But the finding are in conformity with general professional consensus .[3]

Conclusion:

The hyperactive and hypoactive subtypes of delirium appear to be two distinct subsyndromes with a different pattern of causative risk factors, impaired psychopathological symptoms and sleep disturbances. Hypoactive delirium appears to be underdiagnosed and untreated .

Limitations:

The sample size was short.

REFERENCE

1. Lipowski ZJ (1987) Delirium (Acute Confusional State) JAMA: 258 : 1789-1792. | 2. Bourgeois G. et al :delirium, dementia and amnestic disorders in Robert E.Hales, Stuart G. Yudofsky eds:textbook of clinical psychiatry, Washington, American psychiatric Press: 2003:pp 259-296. | 3. Liptzin B, Levkoff S.I.(1992) An empirical Study of Delirium Subtypes : British Journal of Psychiatry 161: 843-845. | 4. LKK solai: Delirium in B. J. Saddock, VA Saddock and P Ruiz eds:Comprehensive textbook of psychiatry Wolters Kluver/ Lippincott William and Willikins Baltimore 2009: 1153-1166. | 5. PT Trzepacz, D.J. Meagher Delirium in J.L Levenson ed : Psychosomatic medicine. American Psychiatric Publishing inc. Washington:2005: 91-130. | 6. Meagher DJ, Trzepacz PT,: Delirium phenomenology illuminates pathophysiology , management and courses .J Geriatric Psychiatric Neurology 11 :150-156,1998. | 7. Francis J , Martin D, Kapoor WN, :1990: Prospective study of delirium in hospitalised elderly. JAMA 263:1097-11011. | 8. Cutting J.(1987) The Phenomenology of Acute Organic Psychosis. Comparison with acute schizophrenia: British journal of Psychiatry.151.324-332. | 9. Meagher D J, Morgan M. Raju B et al(2007): phenomenology of Delirium: British Journal of psychiatry:190:135-141 | 10. Wolf H G,and Curran D(1935). Nature of delirium.Archives of neurology and Psychiatry: 33:1175-1183. | 11. Nicholas L.M ,Lindsay B.A (1995).Delirium presenting with symptoms of depression .psychosomatics;38:471-479 | 12. Koponen H,Stenback U,Mattila E etal (1989):delirium among elderly persons admitted to a psychiatric hospital ;clinical course during the acute stae and one year follow up. Acta Psychiatr Scand 79:579-585. | 13. Fann, J.R., Alfano, C.M., Burington B., et al (2005) Clinical Presantation of Delirium in Patients Undergoing Hematopoeitic Stem cell Transplantation. Cancer 103. 810- 820 | 14. Peterson J.F,Truman B Shintani A et al(2003):Prevalence of delirium subtypes in medical ICU patients. J Am ger society 51:s 174 | 15. Levin Max 1951 Delirium A gap in psychiatric teaching: American Journal of Psychiatry 107:689-694. | 16. Laurila J V, Pitkla K H, Strandberg, et al (2003) THE impact ofdifferent diagnostic criterion on prevalence rates for delirium, dementia and geriatric cognitive disorders:16: 156-162. |