DELIRIUM IN ELDERLY: THE ROLE OF PSYCHIATRIC EXPERTISE IN A MULTI-DISCIPLINARY TEAM

Mariana Arnaoudova

*Department of psychiatry and medical psychology, Medical University of Varna,
St. Marina University Hospital of Varna*

ABSTRACT

INTRODUCTION: Delirium is a neurocognitive disorder frequently observed in elderly patients and can be found in any medical condition. Our experience of consulting elderly patients is that delirium is often unrecognized and respectively under-treated.

The aim of our study was to evaluate the association between delirium and some risk factors and to elicit important diagnostic and therapeutic issues that could be of practical application to various specialists, dealing with elderly patients with delirium.

PATIENTS AND METHODS: We studied 35 consecutive delirious patients (age 60-88), consulted or admitted at a gerontopsychiatric clinic. The patients came from different hospital settings of the university hospital. The ICD-10 and DSM-IV criteria for delirium and dementia were used. A psychiatric interview, clinical psychiatric and mental status examination, physical, laboratory examination and head computed tomography (CT) were performed. Cognitive impairment was recorded by Mini-Mental State Examination (MMSE) and Clock Drawing Test (CDT). Descriptive statistic and correlation analysis were applied.

RESULTS AND DISCUSSION: Dementia was diagnosed in 23 (65.7%) out of all 35 delirious patients. Delirium was associated with factors such as prior cognitive impairment (dementia), advanced age, medical conditions and alcohol abuse. Without significant influence on the development of delirium were gender, marital status and education. Much of the disputable diagnostic issues are associated with the fact that no concrete speciality is dealing with the different aspects of delirium. The risk factors (predisposing and precipitating) provoking delirium should be concerned. The role of psychiatry services should be not restricted only to placement issues and acute treatment.

CONCLUSION: Delirium in elderly is a serious medical problem, requiring precise and appropriate diagnosis and management. The fact that delirium is often multifactorial in origin necessitates a broad intervention strategy. The attention should be on prevention, primary and secondary, mostly by active psychiatric consultation.

Keywords: *delirium, elderly, risk factors, diagnosis, management, psychiatric expertise*

Address for correspondence:

Mariana Arnaoudova, MD, PhD
Third Psychiatric Clinic
St. Marina University Hospital
1, Hristo Smirnenski str., 2010 Varna, Bulgaria
e-mail: marnaudova@hotmail.com
phone: +359888512627

Received: October 2, 2013

Accepted: February 11, 2014

INTRODUCTION

Delirium is common among the elderly population. Delirium is an acute psychiatric syndrome, usually transient and reversible, causes cerebral dysfunction and manifests clinically with a wide range of neuropsychiatric symptoms – fluctuating awareness, impairment of attention and memory, disorganised thinking, hallucinations and disturbance of the sleep-wake cycle. There are three clinical sub-

types of delirium: hyperactive, hypoactive, and mixed. Hypoactive delirium is less likely to be recognised despite patients having a more severe illness (1). The term subsyndromal delirium has been suggested for patients who have an incomplete form of delirium (2). Other terminology used to describe delirium includes “acute confusional state”, “acute brain syndrome”, “acute organic reaction”, “acute brain failure” and “post-op psychosis” (3,4).

The importance of delirium is connected, to a great extent, with a substantial morbidity and mortality (2,5). Patients with delirium could be diagnosed in a variety of settings – emergency, surgical, intensive care wards, general medical care, elderly care services, etc. with a point prevalence in general hospital patients of 10–30% (6,7). Among the elderly, 10–15% have delirium on admission and a further 10–40% develop delirium during the course of their hospital stay (8,9). Delirium is more frequent in those with pre-existing cognitive impairment and certain medical or surgical problems (10).

Our experience of consulting elderly patients is that delirium is often unrecognized because of its fluctuating course and the occurrence of hypoactive forms. To a great extent it is due to the fact that the pathophysiology of delirium is not well understood and needs further complex research. Delirium results from a wide variety of structural or physiological insults. The main hypothesis is that it is a reversible impairment of the cerebral oxidative metabolism and multiple neurotransmitter abnormalities. Delirium is best understood as the result of multiple interacting predisposing and precipitating factors (11).

The aim of our study was to evaluate the association between delirium and some risk factors and to elicit important diagnostic and therapeutic issues that could be of practical application to various specialists, dealing with elderly patients with delirium.

PATIENTS AND METHODS

We studied 35 consecutive delirious patients (age 60–88), consulted or admitted at a gerontopsychiatric clinic. The patients came from different hospital settings of the university hospital. Demographic and clinical data were collected. A psychiatric interview, clinical psychiatric, physical and laboratory examination, chest radiography and head computed tomography (CT) were performed. Cognitive

impairment was recorded by Mini-Mental State Examination (MMSE; Folstein et al., 1975) and Clock Drawing Test (CDT; Sunderland et al., 1989) (12,13). MMSE education adjusted cut-off scores were followed: for subjects whose education level was lower, a score of 24 on MMSE. For higher educated subjects – a score of 25.

The ICD-10 and DSM-IV criteria for delirium and dementia were used (14,15).

Delirium was diagnosed by DSM-IV criteria: disturbance of consciousness associated with reduced ability to maintain attention and changes in cognition that develop over a short period of time, usually hours to days, with a tendency to fluctuate during the day. There is evidence of an aetiological cause (15).

Alzheimer's disease was diagnosed in conformity with the criteria for probable Alzheimer's disease outlined by the NINCDS-ADRDA Work Group (16,17).

Vascular dementia was diagnosed according to the criteria of NINCDS-AIREN (18,19).

Mixed dementia was diagnosed when the patient had signs and symptoms from both degenerative and vascular dementia (14).

Descriptive statistic and correlation analysis were applied.

RESULTS AND DISCUSSION

Dementia was diagnosed in 23 (65.7%) out of all 35 delirious patients. Alzheimer's disease was registered in 14.2%, vascular dementia in 31.4% and mixed dementia in 17.4% out of all. One case of Frontotemporal dementia (FTD) was found.

The mean age of the non-demented patients was 72.1 (SD: 17.77), 62.9% were male. Patients with dementia and delirium had a mean age of 73.08 (SD: 15.32), had more often cognitive impairment compared to patients without dementia.

Baseline characteristics of the 35 patients with and without dementia are presented in Table 1.

The causes of delirium, concerning all delirious patients were cerebrovascular disorder (CVD) in 8 (22.6%) patients, dehydration in 5 (14.3%), medication in 5 (14.3%), alcohol withdrawal in 4 (11.4%). Pulmonary disorders were detected in 4 (11.4%), en-

Table 1. Baseline characteristics of the patients according to the occurrence of delirium

	All	Non- demented	Demented	P value
No (%)	35 (100)	12(34.3)	23 (65.7)	
Age (mean (SD))	72.1 (17.77)	69.66 (4.71)	73.08 (15.32)	0.05
Age range	65-88	65-73	65-88	
Gender No (%)				
Female	13 (37.1)	5 (38.5)	8 (61.5)	
Male	22 (62.9)	7 (31.8)	15(68.2)	
Marital status No (%)				
Living alone	9 (25.7)	1 (11.11)	8 (88.8)	0.05
Female	6 (17.1)	0	6 (100)	
Male	3 (8.57)	1(33.3)	2(66.6)	
Education No (%)				0.05
Primary	15 (42.9)	3 (20)	11 (73.3)	
Secondary	18 (51.4)	8 (44)	10 (55.6)	
Higher	2 (5.7)	1 (50)	1 (50)	
Dementia No (%)				
Alzheimer's disease	5 (14.2)		5 (21.7)	
Vascular dementia	11 (31.4)		11 (47.8)	
Mixed dementia	6 (17.14)		6 (26.0)	
Other types of dementia (FTD)	1 (2.85)		1(4.3)	
MMSE Score (mean (SD))	19.34 (5.96)	26.09 (0.70)	16.25 (4.53)	r=0.92 p<0.001
Range	11-28	25-28	11-24	
CDT Score (mean (SD))	7.22 (1.81)	9.09 (0.83)	7.22 (1.46)	
Range	4-10	8-10	4-9	

docrine disturbances in 4 (11.4%), malnutrition in 3 (8.6%), cardiac intervention in 2 (5.7%) patients.

Demented patients suffered more often CVD, dehydration and malnutrition. Medicaments and polypharmacy showed some association. Not just the type of the medication itself, but rather the dosage, in combination with acute somatic events, is probably associated with higher risk of delirium. Delirium was associated with factors such as prior cognitive impairment (dementia), advanced age, medical conditions and alcohol abuse. Without significant influence on the development of delirium were gender, marital status and education.

As it was seen, some factors seem consistent (dementia, age). Others, such as acute medical illness, medications (overdose, abuse), alcohol abuse lower the threshold for delirium in advanced age and are potentially modifiable and to a certain extent preventable (20, 21, 22). The diagnosis of deliri-

um is clinical. No laboratory test or technique can diagnose delirium. Delirium always should be suspected when an acute or sub-acute deterioration in behavior or cognition occurs, especially in patients who are elderly and demented. Obtaining a thorough history usually from family, caregivers and nursing staff is essential. Delirium is also a common cause for psychotic symptoms. Agitated patients are at risk for violent behavior.

The mental status examination includes the patient's appearance, affect (mood), the presence of hallucinations or delusions, an inquiry into destructive behavior, homicidal behavior, judgment and orientation, immediate, recent and long-term memory. Difficulty focusing attention on what was being said or an acute change in consciousness could be noticed during the interview or if the patient is examined at different parts of the day. Disturbance of the sleep-wake cycle with insomnia, daytime drowsiness, or

disturbing dreams or nightmares can also occur. Emotional disturbances leading to anxiety, fear, and irritability may be seen in some patients.

Most of the diagnostic difficulties concern the differentiation of delirium from dementia and delirium, superimposed on dementia. Delirium could be the first sign of undetected dementia or worsening of the dementia process or coexistence of both and predicts poor prognosis (3). Old age and cognitive impairment are the most important among the risk factors provoking delirium.

While hyperactive forms are easily recognized by the increased state of arousal, psychomotor excitement and hypervigilance, patients with hypoactive forms sometimes are misdiagnosed as demented or depressed – they are withdrawn, less active, sleepy (23,24). We nearly miss subsyndromal delirium due to the presence of some core diagnostic symptoms that do not meet the criteria for the diagnostic threshold.

An important problem is the initial placement of somatic delirious patients in a psychiatric ward. In our opinion, they should be treated in a specialized ward, consulted and observed by a psychiatrist. Much of the problems with such patients are associated with the fact that no concrete speciality is dealing with the different aspects of delirium. The role of psychiatry services should not be restricted only to placement issues and acute treatment. The fact that delirium is often multifactorial in origin necessitates a broad intervention strategy. The attention should be on prevention, primary and secondary, mostly by active psychiatric consultation.

Delirium is a medical emergency and the goal of the treatment is to determine the cause of the delirium and stop or reverse it. The therapeutic approach includes management of both the medical problem and delirium state. Supportive and stimulating care should be organized. The administration of psychotropic medicaments should be closely monitored, as it is disputable and is limited to low doses of antipsychotics (25,26).

As a basic principle, pharmacokinetics, potential drug interactions, and safety profile should be considered when making a therapeutic decision. The registration of an acute psychotic or behavioral problem (confusion, delusions, hallucinations, agitation,

fluctuating cognition) needs assessment and work-up in order to construct a diagnosis. The dominant target symptom group (psychosis, agitation, aggression, anxiety, cognition, sleep disturbance, etc.) has to be elicited. The underlying acute medical problem (physical health, pain, side effect of medications, intoxication, misuse of psychotropic substances, physical environmental factors) are to be examined. Non-pharmacological and pharmacological approaches have to be applied.

CONCLUSION

Delirium in elderly is a serious medical problem, requiring precise and appropriate diagnosis and management. Further research should be directed to causal mechanisms, especially to the relation of delirium and dementia. Given the negative prognostic outcome of delirium, the attention should be on prevention, mostly by active psychiatric consultation.

REFERENCES

1. O'Keeffe, S.T., J.N. Lavan. Clinical significance of delirium subtypes in older people. *Age Ageing*, 1999;28:115-119.
2. Young, J., S. K. Inouye. Delirium in older people. *BMJ*, 2007;334:842-846.
3. Brown, T. M., M. F. Boyle. ABC of Psychological medicine: Delirium. *BMJ*, 2002;325: 644-647.
4. Harrison's Online textbook. Chapter 26: Confusion and Delirium. McGraw-Hill Companies. Accessed February 2009.
5. Witlox, J., L.S.M. Eurelings, J. F. M de Jonghe, K.J. Kalisvaart, W.A. van Gool. Delirium in elderly patients and the risk of post discharge mortality, institutionalization and dementia: a meta-analysis. *JAMA*, 2010;304:443-51.
6. Siddiqi, N., A.O. Horne, A.O. House, J.D. Holmes. Occurrence and outcome of delirium in medical in-patients; a systematic literature review. *Age Ageing*, 2006;35:350-364.
7. McAvay, G. J., P.H. van Ness, S.T. Bogardus, H. Zhany, D. L. Leslie, L.S. Leo-Summers, et al. Older adults discharged from hospital with delirium: one year outcomes. *J Am Geriatr Soc.*, 2006;54:1245-50.
8. Bucht, G., Y.Gustafson, O. Sandberg. Epidemiology of delirium.- *Dement Geriatr Cogn Disord.*, 1999;10:315-318.

9. Fann, J. R. The epidemiology of delirium: a review of studies and methodological issues. *Semin in Clin Neuropsychiatry*, 2000;5:64–76.
10. Meagher, D. Delirium: The role of psychiatry. - *APT*, 2001;7:433–442.
11. Leentjens, A. F., R.C. van der Mast. Delirium in elderly people: an update. *Curr Opin Psychiatry*, 2005;18:325–330.
12. Young J., L. Murthy, M. Westby, A. Akunne, R. O' Mahoney. Diagnosis, prevention, and management of delirium: summary of NICE guidance. *BMJ*, 2010;341:c3704.
13. Folstein, M.F., Folstein, S.E., McHugh, P.R. "Minimal state". A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res.*, 1975;12(3):189–198.
14. Sunderland, T., Hill, J.L., Mellow, A.M., Lawlor, B.A., Gundersheimer, J., Newhouse, P.A., Grafman, J.H. Clock drawing in Alzheimer's disease: a novel measure of dementia severity. *J Am Geriatr Soc.*, 1989;37:725–729.
15. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic Criteria for Research. Geneva, Switzerland: World Health Organization, 1993;36–40
16. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: APA, 1994.
17. McKhann, G., D. Drachman, M. Folstein, R. Katzman, D. Price, E.M. Stadlan. Clinical diagnosis of Alzheimer's disease: report of the NINCDS-ADRDA Work Group under the auspices of Department of Health and Human Services Task Force on Alzheimer's Disease. *Neurology*, 1984;34:939–44.
18. McKhann G., D. S. Knopman, H. Chertkow, B. T. Hyman, C. R. Jack, C. H. Kawas et al. The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging and the Alzheimer's Association workgroup. *Alzheimers Dement.*, 2011;1–7/
19. Roman, G.C., T.K. Tatemi, T. Erkinjuntti, J.L. Cummings, J.C. Masdeu, J.H. Garcia et al. Vascular dementia: diagnostic criteria for research studies. Report of the NINDS-AIREN International Workshop. *Neurology*, 1993;43(2):250–60.
20. Wetterling, T., R.D. Kanitz, K. J. Borgis. Comparison of Different Diagnostic Criteria for Vascular Dementia (ADDTC, DSM-IV, ICD-10, NINDS-AIREN). *Stroke*, 1996;27:30–36.
21. J. McCusker, M. G. Cole, P. Voyer, M. Vu, A. Ciampi, J. Monette, N. Champoux, E. Belzile, A. Dyachenko. Environmental factors predict the severity of delirium symptoms in long-term care residents with and without delirium. *J Am Geriatr Soc.*, 2013;61(4):502–11. doi: 10.1111/jgs.12164. Epub 2013 Mar 21.
22. M. Kennedy, R. A. Enander, S.P. Tadi, R. E. Wolfe, N. I. Shapiro, E. R. Marcantonio. Delirium risk prediction, healthcare use and mortality of elderly adults in the emergency department. *J Am Geriatr Soc.*, 2014;62(3):462–9. doi: 10.1111/jgs.12692. Epub 2014 Feb 10.
23. Vidan, M.T., E. Sanches, M. Alonso, B. Montero, J. Ortiz, J. A. Serra. An intervention integrated into daily clinical practice reduces the incidence of delirium during hospitalization in elderly patients. *J Am Geriatr Soc.*, 2009;58:2029–36
24. Cole, M., J. McCusker, N. Dendukuri, L. Han. The Prognostic Significance of Subsyndromal Delirium in Elderly Medical Inpatients. *J Am Geriatr Soc.*, 2003;51:754–60.
25. Schuurmans MJ, Duursma SA, Shortridge-Baggett LM. Early recognition of delirium: review of the literature. *J Clin Nurs.*, 2001;10:721–9.
26. Girard, T.D., P.P. Panharipande, S.S. Carson, G.A. Schmidt, P.E. Wright, A.E. Canonico et al. Feasibility, efficacy, and safety of antipsychotics for intensive care unit delirium: the MIND randomized, placebo-controlled trial. *Crit Care Med.*, 2010;38:428–37.