

ORIGINAL

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ACUTE CONFUSIONAL STATE; ETIOLOGICAL SPECTRUM



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ABSTRACT ... dr_faheemkhan@msn.com **Objectives:** The study was planned to work out the important organic causes of Acute Confusional State (ACS) in our population, so as to help in pointing out important and common causes of ACS in our setup thus helping to keep in mind different diseases while we are confronted with a patient of ACS. **Study Design:** A descriptive study was conducted at Military Hospital Rawalpindi to evaluate patients admitted with a provisional diagnosis of acute confusional state. One hundred adult patients were consecutively included in the study. **Place and Duration:** The study was conducted at Military Hospital, Rawalpindi. It spanned over the period of 07 months from Oct 2000 to Apr 2001. **Subject/Methods:** One hundred adult patients of both genders admitted with a provisional diagnosis of ACS, presenting within 48 hours of the onset of symptoms were consecutively included in the study. Patients were assessed on Diagnostic and Statistical Manual, 4th Edition (DSM-IV) classification of American Psychiatric Association (APA) and level of consciousness was assessed according to Glasgow Coma Scale. Detailed neurological and systemic examination was done. All the relevant investigations were done immediately including biochemical profile, Blood CP, Urine RE, ECG and Chest X-Ray Other important investigations like lumbar puncture, CT scan head and MRI etc were done where indicated. **Results:** The study showed that neurological lesions and metabolic encephalopathies accounted for about 70% of the cases followed by infections (10%) and drugs/toxins (8%) Amongst the neurological diseases stroke is the most common while in metabolic encephalopathies, hepatic encephalopathy is the commonest followed by ureaemic encephalopathy. **Conclusion:** The study has highlighted the epidemiology of the organic causes of ACS encountered in the patients of the Military Hospital, Rawalpindi, helping us to conclude that neurological and metabolic disorders are the most common organic cause of ACS.

Key Words: Acute Confusional State, Metabolic encephalopathy, Drug intoxication.

INTRODUCTION

Acute Confusional states are among the most common problems in general medicine. It is estimated that over 5% of admissions to the emergency wards of large teaching

Hospitals are due to diseases that cause a disorder of consciousness¹.

Acute confessional state can be defined as: "A clinical state characterized by fluctuating disturbances in cognition,

mood, attention, arousal, and self-awareness which arises acutely, either without prior intellectual impairment or superimposed on chronic intellectual impairment^{2,3}.

The acute organic reactions are caused forth by a great number of different pathological processes. In fact any medical condition can cause acute confusional state. The clinical picture that results is essentially due to disruption of normal brain function, by virtue of biochemical, electrical or mechanical disturbances^{4,25}.

Acute confusional states are characterized by global impairment, and most often caused by pathophysiological changes of organic etiology that can be treated and reversed. Pathological mechanisms are complex and are thought to involve widespread neuronal or neurotransmitter dysfunction^{5,6,7}. Virtually any medical condition can precipitate delirium in a susceptible host; multiple underlying conditions are often found^{8, 27}. The conditions noted most commonly in prospective studies of the disorder include various neurological disorders^{9,10,11,12,22, 24}, fluid and electrolyte disturbances¹³, infections¹⁴, drug toxicity^{15,16,17, 23, 26}, metabolic disorders^{18,19}, low perfusion states and withdrawal from alcohol and sedatives²⁰.

There are many studies on the organic causes of acute confusional states worldwide but surprisingly no such study has been conducted in our set up so this study was planned to determine the important organic causes of acute confusional state in our population.

MATERIAL & METHODS

A descriptive study was conducted at Military Hospital Rawalpindi to evaluate patients admitted with a provisional diagnosis of acute confusional state. One hundred adult patients of both genders presenting to the emergency department of Military Hospital Rawalpindi with provisional diagnosis of acute confusional state, presenting within 48 hours of the onset of symptoms, were consecutively included in the study.

Patients were clinically evaluated and relevant details of history and clinical examination were recorded. Details of drug intake where available were recorded in detail. Patients were assessed on Diagnostic and Statistical Manual, 4th Edition (DSM-IV) classification of American Psychiatric

Association (APA) and level of consciousness was assessed according to Glasgow Coma Scale. Special emphasis was given to detailed neurological examination mapping the details of any focal sign or signs of neurological irritation. Detailed systemic examination including fundoscopy was done in all cases. All the relevant investigations were done immediately including Blood CP, Urine RE, Blood Sugar, LFT's, S Urea, Creatinine and lytes, ECG and Chest X-Ray. Other important investigations like lumbar puncture, CT scan head and MRI etc were done where indicated. A final diagnosis was made in the light of these investigations.

Known patients of dementia were excluded from the study; patients diagnosed to be suffering and already on treatment for psychiatric disorders were also not included in the study and persons with substance abuse were excluded from the study, but not the cases of accidental/intentional drug intoxication.

RESULTS

The study spanned over the period of 07 months from Oct 2000 to Apr 2001 and 100 patients of both genders were consecutively included in the study. The results were broadly classified on etiological basis as neurological, metabolic, infectious, and few cases were put together as miscellaneous causes. These results are shown in the tabular form in table I to IV.

Forty patients in the study out of 100 had some neurological cause for their ACS. The break down of these 40 patients is shown in Table I.

Thirty two patients in the study were found to have metabolic/endocrine cause for ACS. The breakdown of these thirty two patients is shown in Table II. 10 patients in the study had infectious cause to the etiology of ACS. The breakdown of these 10 patients is shown in Table III. 18 patients in the study were grouped together under miscellaneous causes. The breakdown of these 18 patients is shown in table IV. There were eight patients in the study who were identified to have drugs/toxins responsible for ACS.

Table - I Neurological Causes of ACS

Cause	No of Patients%	Male/Female
Stroke	57.5	17/06
Subarachnoid Hemorrhage	10	03/01
Subdural Heamatoma	10	04/00
Brain Tumour (SOL)	7.5	02/01
High Altitude Cerebral Edema (HACE)	5	02/00
Brain Abscess	5	02/00
Epilepsy	5	02/00
Total	100	32/08

Table - II Metabolic/Endocrinal Causes		
Cause	No of Patients %	Male/Female
Hepatic Encephalopathy	50	13/03
Uraemic Encephalopathy	25	06/02
Hypoglycemia	15.625	03/02
DKA	5.25	02/00
Hypocalcemia	3.125	01/00
Total	100	25/07

Key: DKA- Diabetic Ketoacidosis

Among them five patients were young and they were admitted in hospital in unconscious state after being intoxicated. They were found unconscious at railway station and bus stand and were deprived of their belongings. Their gastric lavage was done and sent for chemical examination but the reports could not be obtained due to some administrative problems. All of them regained consciousness within 24-48 hours of admission. Other three patients had identifiable drugs as a cause of their ACS.

Table - III Infectious Causes		
Cause	No of Patients%	Male/Female
Pneumonia	20	02/00

UTI	10	01/00
Meningitis	60	06/00
Cerebral Malaria	10	01/00
Total	100	10/00

Key: UTI- Urinary tract infection.

Table - IV Miscellaneous Causes		
Cause	No of Patients%	Male/Female
Drug Intoxication	44.44	08/00
COPD	11.11	02/00
Leukemia/ Lymphoma	11.11	02/00
Myocardial Infarction	5.55	01/00
Hypertensive Encephalopathy	5.55	01/00
Eclampsia	5.55	01/00
Dementia	16.66	03/00
Total	100	18/00

Key: COPD- Chronic Obstructive Pulmonary Disease.

In 03 patients the cause could not be identified and they were diagnosed as cases of dementia presenting for the first time and their CT scan showed cerebral atrophy consistent with age.

DISCUSSION

This study was planned to work out etiological spectrum of ACS in our setup as no such study has previously been conducted despite the fact that innumerable studies have been conducted internationally. The findings of the study suggested that neurological and metabolic causes are amongst the most common causes of ACS followed by infections, drugs, toxins and few miscellaneous causes. Most of the patients in the study were middle aged and elderly and few of the causes like infections and stroke were mostly seen only in elderly group.

Among the neurological causes stroke¹⁰ was the most common followed by SAH⁹, subdural haematoma¹¹, brain

tumor, brain abscess, high altitude cerebral edema and epilepsy¹². The patients with HACE were evacuated from heights of more than 17,000 feet.

The metabolic^{8,9} and endocrine causes of ACS were the second most common cause of ACS. Thirty two patients in the study had some metabolic/endocrine cause of their ACS. Amongst the metabolic encephalopathies, hepatic encephalopathy was the most common followed by uraemic encephalopathy, hypoglycemia²¹, Diabetic Ketoacidosis (DKA) and hypocalcaemia. Among patients with hepatic encephalopathy, hepatitis C was more prevalent than hepatitis B.

The third most common cause of ACS found in our patients was infections¹⁴, especially meningitis. Four of them were bacterial meningitis cases, one viral and one tuberculous meningitis. There were eight patients in the study who were identified to have drugs/toxins responsible for ACS. This points to a fact that drugs are not a very common cause of ACS in our setup as compared to international studies in which drugs have been held responsible for large number of patients as a cause of ACS^{15,16,17}. One important fact however remains that these studies have been done in special centers such as for oncology²⁹ and organ transplantation. Another reason for this is probably the fact that alcohol²⁰ is not so prevalent in our society and secondly, the patients who are prescribed medicines for protracted illnesses are not compliant with their medication. Another point is that our patients give very poor drug history and lastly we have to rely on clinical judgment for the toxicity of drugs because drug levels cannot easily be done in all the laboratories.

There are some other causes of ACS, which have been grouped under miscellaneous group because of small number of cases. These causes include COPD, Leukaemia, lymphoma, eclampsia and hypertensive encephalopathy. In one large International study by Plum & Posner⁴ about 75 % cases had metabolic or neurological cause of their ACS followed by drug intoxication. In this study 72 % of cases have neurological or metabolic cause of their ACS followed by infection¹⁴ and drug intoxication^{16,17}.

In the study of one hundred patients there were some

important observations, for example many patients and their attendants, about 70 %, had no idea about drug history. They were mostly getting their medicines from quacks, hakims or homeopathic and had no idea about these medicines.

The number of female patients in the study was very less probably because of reasons of entitlement and a similar study in some civilian hospital may help in ascertaining whether this is the reason of less number of female patients or they suffer from ACS less frequently. Pregnancy related causes could not be ascertained exactly because many of the female patients with ACS were taken directly to gynae/obstetric department.

Post-mortem examination was not possible in many cases and they had to be excluded from study in instances where diagnosis could not be made ante-mortem and causes of ACS in surgical wards could also not be included in the study

RECOMMENDATIONS

Another study in this regard will be of immense value for purpose of comparison because of the following reasons.

- The number of female patients in the study was less probably because of the reasons of entitlement.
- Patients with emergencies were taken directly to respective departments such as gynae / obstetrics and cardiology and they could not be included in the study..
- Results of chemical examination / drug levels could not be done and obtained in many cases because of logistics and economic reasons.
- A study will be available for comparison.

CONCLUSION

From this study we have concluded that neurological and metabolic disorders are the most common cause of ACS. They are followed by infections, drugs/toxins and other rare causes. Among the neurological causes stroke is the most common while amongst the metabolic cause hepatic encephalopathy followed by uraemic encephalopathy are the important causes. The study has thus helped us in giving clues to remember for important causes, which can

present as ACS and to plan investigations and institute quick management, thus treating preventable causes of ACS.

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CORRECTION

The amendment of the Professional Vol:10, No.01 (Prof-694) page 66 are as under;

INCORRECT

ORIGINAL

PROF-694

PREVALENCE OF HEPATITIS B & HEPATITIS C

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