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A Clinical Study on Patients of Fever Followed with Unconsciousness in a Teaching Hospital: A Study in Rajshahi Medical College Hospital, Rajshahi, Bangladesh

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Abstract **Original Research Article**

Introduction: Coma is a common problem in general medicine accounts for a substantial portion of admissions to emergency wards and occurs frequently on hospital services. Confusion and a diminished level of consciousness frequently coexist and are caused by many of same diseases. ***Objective:*** To find out A Clinical Study on Patients of Fever Followed with Unconsciousness in a Teaching Hospital. ***Material and Methods:*** In this study, a total of 50 cases with age ranging from 16 to 65 years, of them 29(58%) male and 21(42%) female, were included .the cases were collected from three medicine units of Rajshahi Medical College Hospital, Rajshahi, over a period from July 2004 to January 2005. All of the patients got admitted through the emergency department. For the purpose of this study, any patient who was admitted in medicine unit with fever followed .with-unconsciousness, developed from any causes were included. ***Results:*** A series of 50 adult cases of fever followed with unconsciousness in this dissertation, collected from medical units of Rajshahi Medical College Hospital, which did not include traumatic cases. The preliminary history, physical findings and some routine investigations and specific investigations done to confirm the diagnosis. Majority of patients were of age group 16-20 years (40%). The mean age was 25.8 years. It was found that male (58%) and female (42%). Socioeconomic condition was poor in majority of cases (72%). 78% patients came from rural area. Patients from Rajshahi district were the highest (40%). Majority of patients were students (30%) then farmer (24%). All of the patients were exposed to mosquito bite. In this study 56% patients got complete recovery, 18% recovered with complications, 26% patients died. Important complications were cognitive impairment, headache, cranial nerve palsies, and hemiplegia. The mortality was highest in pyogenic meningitis (50%). ***Conclusion:*** Fever with unconsciousness is a common but dangerous clinical problem that is often encountered in clinical practice in this country. In the present study, a series of 50 adult patients hospitalized in medicine units have been analyzed and an attempt has been made to find out the causes of fever with unconsciousness by a thorough evaluation of its clinical aspects and correlating them with the laboratory findings.

Keywords: Neurological signs, outcome, Majority, Fever.

INTRODUCTION

Coma is a common problem in general medicine accounts for a substantial portion of admissions to emergency wards and occurs frequently on hospital services. Confusion and a diminished level of consciousness frequently coexist and are caused by many of same diseases. But from a medical perspective they have different clinical characteristics and physiologic explanations. Almost all instances of diminished alertness can be traced to wide spread abnormalities of the cerebral hemisphere or to reduced activity of a special thalomocortical alerting system termed the reticular activating system. This study focused the patients of unconsciousness who have had fever. The etiologies of these patients are often difficult to find out and produce considerable diagnostic dilemma. History and mode of onset of unconsciousness, neurological examination and assessment of conscious level are essential for diagnosis. CSF study should not be delayed. So history, neurological examinations and CSF study (if not contraindicated) will provide early diagnosis and treatment. And it will significantly reduce the morbidity and mortality of this catastrophic condition. In a study

of 104 cases of cerebral malaria in Chittagong Medical College Hospital by Faiz MA [1] recommended establishment of intensive care unit in tertiary level of hospitals is necessary to take appropriate measure for severe cerebral malaria cases for reduction of mortality; In USA annual incidence of encephalitis is about 1 in 200,000. Children, elderly and immunocompromised persons are affected ". Another study of 104 patients treated in psychiatric hospital, because of mental disturbance caused by an infection, almost one half had been referred directly to psychiatric hospital on account of psychically abnormal behaviors that somatic examination was frequently delayed. A study on 30 consecutive adult cases with meningeal irritation in Rajshshi Medical College Hospital from 1st July' 98 to 31st December'98 showed aseptic meningitis possibly viral origin is the most common cause (52.8%) followed by tubercular meningitis (19.8%) and SAH (10%). Unfortunately in the north western region of Bangladesh there were few studies on this topic till now. So to diagnosis and treat the patients of fever followed with unconsciousness in a fruitful and economic way more studies were necessary on this problem in this region. This study was more informative and enriched specially by revealing the disease pattern of this particular area. Most of our hospitalized patients are poor, so this study will help all level of medical personnel's to diagnosis with minimum investigations or at least quick referral that will lessen the economic burden of general population. Anterior portion of the hypothalamus especially the preoptic area, is concerned with regulation of body temperature. Fever is an elevation of body temperature that exceed the normal daily variation and occurs in conjunction with cm increase in (he hypothalamic set point. An A.M temperature of >37.2^0 C (>98.9^{0}F) or a P.M temperature of 37.7^0 C (>99.9^{0}F) would define fever. In humans the traditional normal value for the oral temperature is 37^{0}c (98.6^0 F) but in one large series of normal young adults, the morning oral temperature averaged 36.7^{0}c with a standard deviation of 0.2^{0}c the oral temperature is normally 0.5^{0}c lower than the rectal temperature. The hypothalamus is said to produce an integrated body temperature in response to information from sensory receptors primarily cold receptors) in the skin, deep tissue, spinal cord, extra hypothalamic portions of the brain and the hypothalamus it-self. Fever is perhaps the oldest and most universally known hallmark of disease. When fever occurs, many physiological stresses take place. Some of these include increased oxygen consumption as a response to increased cell metabolism, increased heart rate, increased cardiac output, increased leukocyte count, and an increased level of C-reactive protein. Oxygen consumption increases by 13% for every 1 C increase in body temperature, provided no shivering occurs. If shivering is present, oxygen consumption may increase by 100% to 200%. Although fever is often given a negative connotation, this response must provide some benefit for the host or it would not have been preserved throughout human evolution.

OBJECTIVE

To find out A Clinical Study on Patients of Fever Followed with Unconsciousness in a Teaching Hospital.

MATERIAL AND METHODS

In this study, a total of 50 cases with age ranging from 16 to 65 years, of them 29(58%) male and 21(42%) female, were included .the cases were collected from three medicine units of Rajshahi Medical College Hospital, Rajshahi, over a period from July 2004 to January 2005. All of the patients got admitted through the emergency department. For the purpose of this study, any patient who was admitted in medicine unit with fever followed .with-unconsciousness, developed from any causes were included. Those patients who were not compatible for lumber puncture (e.g. fundoscopic examination finding was papiiloedema or attendece refused lumber puncture), or had not pleocytosis (C.S.F lymphocyte <5/c.m.m) were excluded from this study. ≥16 years patients were only included. Surgical coma was not included in this series.Then necessary investigations were carried out either to confirm the clinical diagnosis or to exclude other possibilities. Investigations routinely carried out included haematocrit, Hb%, total', and differential count, erythrocyte sedimentation rate, platelet count, blood for MP, blood sugar, serum creatinine, serum electrolytes, VDRL, and CSF study (physical, biochemical, microscopic staining, cytological examination and culture). Other investigations like Chest X-ray P/A view, tuberculin test, Widal test, CT scan of brain, Ultasonogram of whole abdomen, ANF, and Liver function test were done in selected cases.

RESULTS

During the period July 2004 to January 2005 a total number of 50 cases were selected from three medicine units of Rajshahi Medical College Hospital, Rajshahi. There was variation in the age incidence of these patients minimum age was 16 years and maximum 62 years. Majority 16-20 years age group 40%,-21-25 years age group 22%V26-30 years age group 16%, 31-35 years age group 08%, 36-40 years age group 04%, 41-45 years age group 04%, 46-50 years age group 02-%, 51-55 years age group 02%, 56-60 years age group 00%, > 60 years age group 02% (Table-1). Among them the percentage distribution of different cases of fever followed with unconsciousness are as follows: aseptic meningitis (n-12, 24%), then encephalitis (n-11, 22%), Pyogenic meningitis (n-6, 12%), Typhoid meningitis (n-4, 8%), Tubercular meningitis (n-5, 10%), Meningoencephalitis (n-9, 18%), Cerebral malaria (n-2, 4%) and Acute disseminated (n-1, 2%). Majority of patients were in the earlier age

group (16-20 yrs). Considering the male, female ratio, it was found that male (58% cases) and female (42%-21 cases) (Figure-1).

Table-1: Age incidence with percentage of 50 cases

Age group	No. of patients	percentage
16-20	20	40%
21-25	11	22%
26-30	08	16%
31-35	04	08%
36-40	02	04%
41-45	02	04%
46-50	01	02%
51-55	01	02%
56-60	00	00%
>60	01	02%

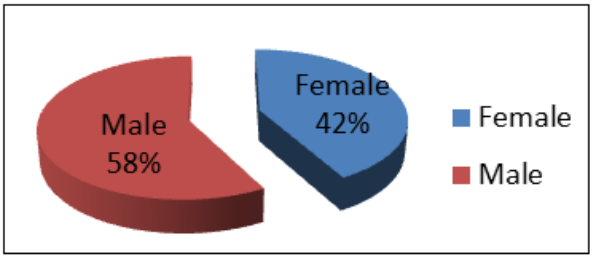

Fig-1: Sex distribution with percentage

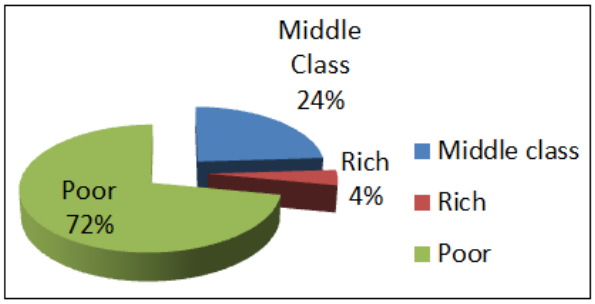

Fig-2: Socio-economic condition with percentage

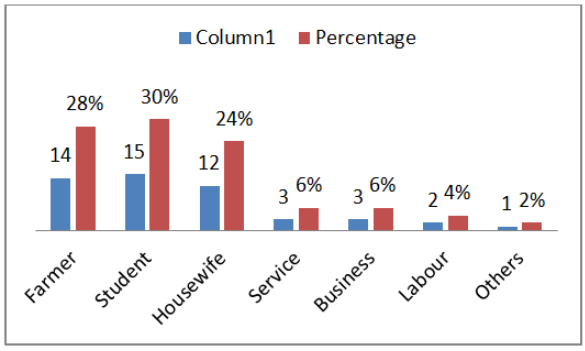

Fig-3: Occupation of 50 cases with percentage

In this study majority of patients were fanner (n-14, 28%) student-(n-15, 30%), housewife (n-12, 24%), service (n-3, 6%), business (n-3, 6%), labour (n-2, 4%) others (n-1, 2%) (Figure-3). Out of 21 female patients 12 patients (57.1%) were housewives, 9 patients (42.9%) were students. Socio-cultural, religious stigma, and illiteracy of our society especially rural area hardly allow the females to engage in outwards occupation. Among male patients (n-29) majority were farmers (48.27%) and students were (20.68%).

Table-2: Distribution of residence among the 50 cases

District	No. of cases	Percentage
Rajshahi	20	40%
Naogaon	10	20%
Chapai Nawabgonj	06	12%
Natore	06	12%
Pabna	04	08%
Kushtia	01	02%
Joypurhat	02	04%
Meherpur	01	02%

As the students were 30% (n-15) in this study, it HI directly indicate majority of cases were age group 16-20 years. In this study, patients were enrolled from different districts; the patients were in different 8 districts. Majority patients came from Rajshahi (n-20, 40%), then Naogaon (n-10, 20%), Chapai Nawabgonj (n-6, 12%), Natore (n-6, 12%), Pabna (n-4, 8%), Joypurhat (n-2, 4%), Kushtia (n-1, 2%), Meherpur (n-1, 2%) (Table-2). Majority of patients came from Rajshahi possibly due to Rajshahi district is the nearest to this hospital.

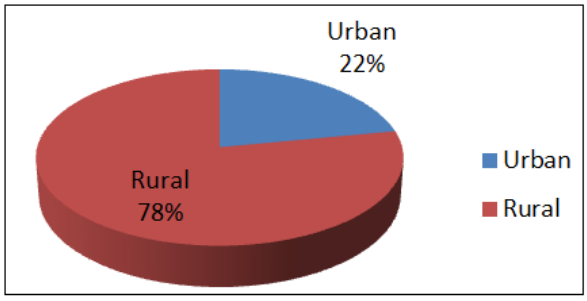

Fig-4: Locality of studied disease with percentage

This study reflected the most of the patients the most of the patients were in rural area (n-39, 78%), and urban patients were (n-11, 22%) (Figure-4).

Table-3: Relative incidence of 50 cases

Diagnosis	No. of cases	Percentage
Aseptic	12	24%
Encephalitis	11	22%
Pyogenic meningitis	06	12%
Typhoid meningitis	04	8%
Tubercular meningitis	05	10%
Meningo encephalitis	09	18%
Cerebral malaria	02	4%
Acute disseminated encephalomyelitis	01	2%

Aeitology was mainly due to aseptic meningitis (24%) and then encephalitis (22%).

Important symptoms of which patients presented were headache vomiting stiff neck convulsion, drowsiness, fever and loss of consciousness have all the patients. Signs of meningeal irritation were present 60% cases. Focal neurological deficits had 8% of patients (Table-3).

Table-4: Incidence of different disease in different age group

Age group (years)	Meningitis	Encephalitis	Meningo encephalitis	Cerebral malaria	Acute encephala omyelitis
16-20	12	04	02	01	01
21-25	03	03	04	01	-
31-35	03	01	-	-	-
36-40	01		-	-	-
41-45	01		01	-	
46-50	-		01	-	
51-55	01		-	-	
56-60	-		-	-	
> 60	-		01	-	

Table-5: Sex distribution of 50 cases in different diseases

Diseases	Male (N-29)	Female (N-21)
Aseptic meningitis	07	05
Encephalitis	06	05
Pyogenic meningitis	04	02
Typhoid meningitis	02	02
Tubercular meningitis	03	02
Meningo encephalitis	04	05
Cerebral malaria	02	00
Acute disseminated encephalomyelitis	01	00

Pyogenic meningitis cases were six, out of them three cases were diagnosed as meningococcal meningitis. CSF pleocytosis was present in all cases. Out of two cases of cerebral malaria one patient had positive for malaria parasite in blood film (Table-5).

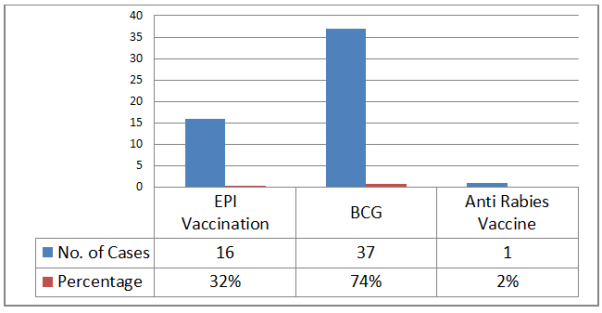

Fig-5: Immunization with percentage

In this study 16 cases (32%) completed EPI vaccination, BCG vaccination 37 cases (74%), Anti rabies Vaccination 1 case (2%) (Figure-5).

Table-6: Mean age and sex distribution of 50 studied cases

Disease	Mean age	Male	Female
Meningitis	29.4	15	12
Encephalitis	22	06	05
Meningo encephalitis	26.3	04	05
Cerebral malaria	24.5	02	-
Acute disseminated encephalomyelitis	19	01	-

Table-7: Symptoms in 50 cases with percentage

Symptoms	No. of cases	Percentage
Fever	50	100%
Anorexia	10	20%
Nausea	42	82%
Vomiting	40	80%
Cough/Cold	16	32%
Difficulty breathing	05	10%
Muscle pain	11	22%
Rash	04	08%
Headache	45	90%
Abnormal perception	19	38%
Convulsion	40	80%
Stiff neck	28	56%
Drowsiness	20	40%
Unconsciousness	50	100%
Generalized weakness	31	62%
Weakness of parts of body	02	4%

Table-8: Relative study of important symptoms between meningitis and Encephalitis 50 cases

Symptoms	Meningitis (n-27)		Encephalitis (n-11)	
	No. of cases	Percentage	No. of cases	Percentage
Fever	27	100%	11	100%
Vomiting	20	74%	07	63.6%
Cough/Cold	03	11.1%	02	18%
Difficulty breathing	01	3.7%	02	18%
Rash	01	3.7%	01	9%
Headache	24	88.8%	09	81.8%
Abnormal perception	09	33.3%	06	54.4%
Convulsion	19	70%	07	63.6%
Stiff neck	20	74%	-	-
Drowsiness	09	33.3%	05	44.4%
Unconsciousness	27	100%	11	100%
Neurological deficit	01	3.7%	01	9%

Headache (88.8%), stiff neck (74%). Vomiting (74%), convulsion (70%), Drowsiness (33.3%), Abnormal perception (33.3%) were the common presenting complaints. Fever and unconsciousness were the inclusion criteria, so all of the patients have had fever and unconsciousness (Table-8).

Table-9: Duration of fever in 50 cases

Diseases	< 7 days (n-34)	7-30 days (n-12)	>30
Aseptic meningitis	09	03	-
Encephalitis	11	-	-
Pyogenic meningitis	06	-	-
Typhoid meningitis	-	04	-
Tubercular meningitis	-	01	04
Meningo encephalitis	07	02	-
Cerebral malaria	01	01	-
Acute disseminated encephalomyelitis	-	01	-

In this study 34-eases (68%) had < 7 days duration of fever, 12 cases (24%) had fever 7-30 days of duration, 04 cases (8%) had fever persisting >30 days but within 45 days (Table-9). Patients presenting with meningitis symptoms for over 1 week (chronic meningitis) commonly have meningitis caused by different pathogens (eg, mycobacterium, fungi, or meningovascular syphillis). In my series 5 cases of tubercular meningitis had long duration of meningitis symptom (Table-9).

Table-10: Association with temperature value in different diseases of 50 cases.

Diseases	99^0F-100^0F	101^0F-102^0F	103^0F-104^0F
Aseptic meningitis	07	05	-
Encephalitis	08	03	-
Pyogenic meningitis	-	02	04
Typhoid meningitis	-	02	03
Tubercular meningitis	04	01	-
Meningo encephalitis	06	03	-
Cerebral malaria	-	-	02
Acute disseminated encephalomyelitis	-	01	-

In this series the different value of temperature was divided into four groups, majority of patient (50%) had temperature 99^0F-100^0F, 17 cases (34%) had temperature 101^0F-102^0F, only 8 cases (16%) had 103^0F-104^0F66.6% patient of pyogenic meningitis had temperature 103 F-104 F, 80% of tubercular meningitis patient had temperature 99^0F-100^0F, 100% cases of cerebral malaria had temperature 103^0F-104^0F, 72.7% encephalitis patient had 99^0F-100^0F (Table-10).

Table-11: Neurological signs of 50 cases with percentage

Neurological signs	No. of cases	Percentage
Neck rigidity	30	60%
Kernig's sign positive	20	40%
Absent/Diminshed Deep jerks	14	28%
Extensor planter response	16	32%
Abnormal pupillary response	08	16%
Cranial nerve palsy	02	4%
Hemiplegia	01	2%
Paraplegia	01	2%

Neurological signs in 50 cases in this study were neck rigidity 30 cases (60%), positive Kemig's sign 20 cases (40%), extensor planter response found in 16 cases (32%), diminished deep jerks 14 cases (28%), abnormal pupillary response 08 cases (16%), 02 patients had cranial nerve palsy (left 6th cranial nerve), 01 patients had hemiplegia, 01 patients had paraplegia (Table-11).

Table-12: Haematological and Biochemical results of 50 cases

↓Hb%	**07**	**14%**
↑ESR	43	86%
Leukocytosis	15	30%
Blood for MP (Positive)	01	2%
↑Serum creatinine	03	6%
↑Random blood sugar	03	6%
Positive Widal test	04	8%
↓Serum sodium	08	16%
↑Serum potassium	03	6%

In a study of differential diagnosis of acute meningitis showed CSF glucose level < 34 mg%, protein > 220mg%, or WBC > 2000/cm was present in 88%. Important haematological and biochemical results of my study were increased ESR in 43 cases (86%), neutrophilic, leucocytosis in 15 cases (30%), blood for malarial parasite was present only 01 case, but out of 02 cerebral malaria 01 patient had malaria parasite in blood film, 03 cases had impairment of renal function as evidenced by increased serum creatinine, 3 patient had concomitant Diabetes mellitus, their random blood sugar were significantly high. Significant Widal test was present only in 04 cases. The major electrolyte imbalances were hyponatremia 08 cases (16%) and hyperkalemia 03 cases (Table-12). Hyponatremia is possibly due to SIADH, disorders of CNS e.g. meningitis, encephalitis are important cause SIADH. Important drugs used in this study were Injection Ceftriaxone 38 cases (76%), Injection Dexamethasone was being given of all patients, Injection Amoxycillin in 14 cases, Injection Gentamycin in 08 cases, Injection C-Penicillin in 07 cases, Anti-Tubercular in 05 cases, Injection Quinine only 02 cases (Table-13).

Table-13: Important drugs used in 50 different cases

Inj. Ceftriaxone	**38**	**76%**
Inj. Amoxycillin	14	28%
Inj. Gentamycin	08	16%
Inj. C. Penicillin	07	14%
Inj. Acyclovir	00	00%
Inj. Dexamethasone	50	100%
Anti-tubercular	05	10%
Inj. Quinine	02	4%
Inj. Ciprofloxacin	02	4%
Inj. Ranitidine	50	100%

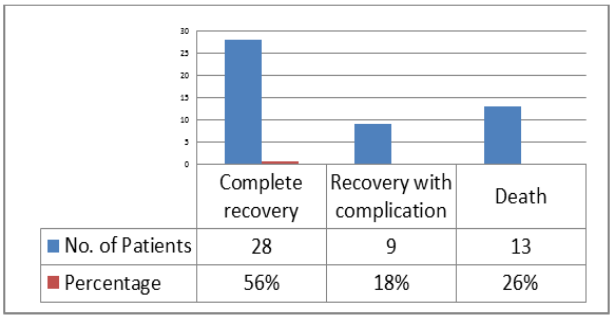

Fig-6: Hospital outcome of 50 cases

In this series 28 cases (56%) of total study patient got complete recovery without any complication, 09 cases (18%) patient recovered with complication and 13 cases (26%) died during hospital stay (Figure-6). 46% patients in this present study were in GCS 3-6, 54% patients were in GCS 7-10. There was no patient who had GCS 9 or more. All the patients in this study who died were in GCS 3-6. In this study 56% patients got complete recovery, 18% recovered with complications, 26% patients died. Important complications were cognitive impairment, headache, cranial nerve palsies, and hemiplegia. The mortality was highest in pyogenic meningitis (50%). Most favorable outcomes were from aseptic meningitis patients, 91.6% patients recovered without any sequlae. 18% patients who recovered with complication had cognitive, impairment, headache, and neurological deficits like cranial nerve palsy and hemiplegia.

DISCUSSION

In my study 50 cases (100%) patients were exposed to mosquito bite, 33 cases (66%) gave history of cattle handling, only one patient gave history of dog biting. There were no patients who gave history of direct pig or bat exposure, but one patient told he lived the village where pigs were nearby his house. In one study in Malaysia, the outbreak was contained by the mass culling of >1 million pigs 46. Another study showed pteropus bats as a possible natural host for Nipah virus47. Another study by Abe T *et al*., [3], shown Japanese encephalitis. In one study of Nipah virus encephalitis reemergence Bangladesh revealed, among all interviewed residents, patients were more likely than no patients to have had contact with an ill cow (OR 7.9, CI 2.2-27.7). Although >90% of villagers reported that bats were frequently seen near thj6ir homes, patients and controls showed no differences in contact with bats or other animals, whether ill or well. In this study 16 cases (32%) completed EPI vaccination, BCG vaccination 37 cases (74%), Anti rabies Vaccination 1 case (2%). Headache (88.8%), stiff neck (74%). Vomiting (74%), convulsion (70%), Drowsiness (33.3%), Abnormal perception (33.3%) were the common presenting complaints. Fever and unconsciousness were the inclusion criteria, so all of the patients have had fever and unconsciousness. One of the total six bacterial' meningitis patient (16.6%) had hemorrhagic rash. Suggestive meningococcal. Out of three meningococcal meningitis patients 1 had haemorrhagic rash (33.3%). That is similar with study of Young AP [4] showed 40% of patients with invasive meningococcal present with haemorrhagic rash. In a study conducted by Attia J *et al*., [18] showed about two-thirds of adult patients with pyogenic meningitis present with the classic clinical trial of fever, neck stiffness, and altered mental status (or headache), and 95% had at least two of the three symptoms. Van de Beek D *et al*., [7], evaluated 696 episodes of community-acquired acute meningitis, the classic triad of fever, neck stiffness, and a change in mental status was present in only 44 percent of episodes; however, 95 percent had at least two of the four symptoms of headache, fever, neck stiffness, and altered mental status. Another study in Rajshahi Medical College Hospital of adult cases with meningeal irritation revealed; Headache (100%), fever (86.7%), vomiting (80%), unconsciousness (46.6%) and seizures (39.6%) were the common symptoms. Majority of symptoms are fairly consistent with those study. One of meningitis patient had hemiplegia (3.7%), which is not similar to my study, conducted by Van de Beek D *et al*., [7] showed 33% had focal neurologic abnormalities and Ekram ARMS *et al.*, [5] showed hemiplegia (10%). In this study 34-eases (68%) had < 7 days duration of fever, 12 cases (24%) had fever 7-30 days of duration, 04 cases (8%) had fever persisting >30 days but within 45 days. Patients presenting with meningitis symptoms for over 1 week (chronic meningitis) commonly have meningitis caused by different pathogens (eg, mycobacterium, fungi, or meningovascular syphillis). In my series 5 cases of tubercular meningitis had long duration of meningitis symptom. In this series the different value of temperature was divided into four groups, majority of patient (50%) had temperature 99^0F-100^0F, 17 cases (34%) had temperature 101^0F-102^0F, only 8 cases (16%) had 103^0F-104^0F. there was no patients in >104^0F group. 58.3% patients of viral meningitis had temperature value 99^0F-100^0F, 66.6% patient of pyogenic meningitis had temperature 103 F-104 F, 80% of tubercular meningitis patient had temperature 99^0F-100^0F, 100% cases of cerebral malaria had temperature 103^0F-104^0F, 72.7% encephalitis patient had 99^0F-100^0F. A surveillance[19] for encephalitis in Bangladesh showed among the first 110 CSF samples evaluated, 11 (10%) were polymerase chain reaction (PCR) or culture positive for Neisseriae meningitidis, 7 (6%) for streptococcus pneumonia and 2 for Haemophilus influenzae. In one study by Kadir H[6] meningitis due to Streptococcus pneumonlae accounts for 70% and Nelsseria meningltidis and Mycohacterlum tuberculosis 20%. In a study of differential diagnosis of acute meningitis showed CSF glucose level < 34 mg%, protein > 220mg%, or WBC > 2000/cm was present in 88%. Van de Beek D [7] mentioned 33% had focal neurological deficit in bacterial meningitis patients. Another study in Rajshahi Medical College Hospital by Ekram ARMS *et al*., [5] mentioned cranial nerve palsy (13.3%) and hemiplegia (10%) in patients presented with meningeal irritation. This is consistent with my study. Unfortunately percentage of altered consciousness and cognitive impairment were high partly because of 05 out of 50 total cases took Discharge on Risk Bond (DORB) and 01 patient absconded. Out of 37 live cases 26 patients (70.2%) attended follow up 04 weeks after discharge in this study. 11 cases (29.8%) did not attend follow up visit. This is one of the limitations of my study. Out of 26 follow up completed cases 17 patients got completely recovered (65.3%) and 07 cases recovered with some complication (26.9%), 02 cases reported to death after discharge from hospital. In this series encephalitis cases were 11 (22%) and meningo-encephalitis 09 cases (18%). The study of Helliwell *et al.*, [8], mentioned 3.84% of unconscious was due- to encephalitis, this study dealt with only unconscious patients. In a study of Hsu VP, Hossain MJ *et al*., [9], described 67% patients were male, and their ages were 4-42 years of age (median 12 years of age), they also mentioned among patients with probable or confirmed cases, patients in Naogaon tended to be younger (median age 12 years vs. 38 years of age). Whether younger age is associated with a more fulminant course is uncertain, but the experience in Naogaon suggests that children appear to be as susceptible to infection as adults. Another study of Abe T *et al*., [3]. Lee TC *et al*., [10], in whose study sex ratio was male: female, 1.4:1 and mean age 35 ± 2.0. Ten of the first 176 patients (6%) enrolled in the study tested positive for Japanese encephalitis, including 11% (7/63) of patients recruited from Rajshahi Medical

College Hospital. The ages of Japanese encephalitis (JE) patients were similar to the study group as a whole; 40% were male. 4 JE patients resided in Chapai Nawabgonj District. These data suggest that Japanese encephalitis virus is an emerging cause of encephalitis in Bangladesh 37. Hsu VP *et al*., [9], showed fever was found in all patients, followed by an altered level of consciousness in 22 (88%) and headache in 72%. Cough 65% and difficulty breathing 65% were also common. Vomiting occurred in half of the patients, but seizures and diarrhea were uncommon. Although a significant difference was seen between patients with confirmed and probable cases. A prospective hospital based study of encephalitis by Lee TC *et al*., [10]. Virus could not be isolated; neither antibody could be detected, as sophisticated tests are not yet available in Rajshahi Medical College Hospital. A study by Kennedy PGE [11] showed 5% of patients with Herpes simplex encephalitis have a normal CSF profile; the typical features of Herpes simplex encephalitis are a lymphocyte cell of 10-200/mm3 and an increased protein of 0.6-6g/l. In this series there were no such encephalitis patients who have got anti-viral therapy, patients got only symptomatic and supportive therapy because of vims isolation was not possible in Rajshahi Medical College Hospital and Intravenous aciclovir was hot available in Rajshahi. In one study by Steineri *et al*., [16] mentioned specific, evidence-based, anti-viral therapy, acyclovir is available for herpes encephalitis. In another study by Whitley RJ [12, 13] showed, if anti-viral therapy is not given to patients with Herpes simplex encephalitis the mortality is over 70%. In one study by McGrath N [14] showed 12% Herpes simplex encephalitis patients died in the first month, 12% patients had a severe neurological deficit, 21% were living independently, but were functioning at a lower level than before the illness. The most common long-term symptoms were memory impairment, personality and behavioral abnormalities, and epilepsy. Short-term memory impairment, anosmia, and dysphasia were the most common, signs, although acyclovir has reduced the mortality of herpes simplex encephalitis, 30% of this group of patients either died or had a severe neurological deficit. Hsu VP *et al*., [9]. reported in Meherpur district, on April, 2001, all 09 persons with probable cases were hospitalized and died as a result of their illness before laboratory specimens could be collected (case-fatality rate = 69%) In this series 02 cases were to have cerebral malaria. Though they were not from Southeast area of the country, one had history of traveling Chittagong before illness. Both of patients were < 25 years of age, both of them were male and poor lived in rural area. Annobil SH *et al.*, [15] showed to their study that sex ratio was male; female 1.3:1. A study by Faiz MA [1] revealed 104 cases of cerebral malaria in Chittagong Medical College Hospital 69% patients were admitted within 25 to 48 hours following unconsciousness. Intermittent fever (83%), convulsion (60%), vomiting (80%) and headache (75%) were important features noted in patients. Annobil SH *et al*., [15] mentioned; 100% cases had fever, vomiting 23%, diarrhea (10%), convulsion 4%. Importantly one patient had positive evidence of malarial parasite in peripheral blood film examination, one of case had anaemia. Annobil SH *et al*., [15] showed 2.4% had positive blood films for malaria, 53% were found to be anaemic. Day JN [17] reported cerebral malaria is uniformly fatal in the absence of treatment and the overall mortality of treated cerebral malaria is around 20% in adults, up to 3% of adults and 20% of children have a persistent neurological deficit after cerebral malaria. One of case of this present study was acute disseminated encephaloinyelitis; patient was male, 18 years age poor student. He took anti-rabies vaccine for dog bite. He was presented with fever, vomiting, headache, convulsion, stiff neck, drowsiness followed by unconsciousness with paraplegia, on examination he was unconscious his GCS was 05, temperature 102^0F, up going planter response. CSF study revealed clear SCF with pleocytosis, and mild increase of protein, decreased glucose. He was treated symptomatically. After 1 day of hospital admission, he died. Acute disseminated encephalomyelitis is an acute demyelmating disorder of central nervous system triggered by infection or vaccination.

CONCLUSION

Fever with unconsciousness is a common but dangerous clinical problem that is often encountered in clinical practice in this country. In the present study, a series of 50 adult patients hospitalized in medicine units have been analyzed and an attempt has been made to find out the causes of fever with unconsciousness by a thorough evaluation of its clinical aspects and correlating them with the laboratory findings. In conclusion, it is to be noted that the patient management would be more fruitful if viruses' isolation were possible by sophisticated laboratory investigations. Establishment of intensive care unit tin tertiary level hospitals is necessary to take appropriate measure. If an extensive study could be carried out with a quite large number of patients and with improved investigational facilities, the unresolved factors of the present study could be brought to light.

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