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Coma In Non Head Injury Cases

KEYWORDS: COMA, GCS, POISONING, CEREBRAL HAEMORRHAGE

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ABSTRACT *Human brain is a complex organ performing a multitude of functions responsible for maintaining the mileu interior and exterior.Consciousness requires an intact brain functions,or to be more precise, an intact ascending reticular activating system.Any damage to this causes absent arousal or coma. Patients can sometimes present with episodic impairment of consciousness.As with any other cause of loss of consciousness,patients with episodic loss of impaired consciousness also is evaluated from history by a reliable attender,biochemical and imaging modalities. Comatose patient presenting to an emergency room is always a challenge to the attending physician,especially the non traumatic coma.Prompt and precise diagnosis helps to give adequate and appropriate treatment immediately, thereby increasing patients chance of recovery. This study is done to know the various etiologies of coma other than head injuries in our institution.*

INTRODUCTION

Human brain is a complex organ performing a multitude of functions responsible for maintaining the mileu interior and exterior.These functions are maintained both in the conscious and unconscious state.Consciousness requires an intact brain functions,or to be more precise, an intact ascending reticular activating system.Any damage to this causes absent arousal or coma.

Patients can sometimes present with episodic impairment of consciousness

It can be due to

A)impaired cerebral perfusion-syncope
B)cerebral ischemia
C)epilepsy
D)migraine
E)sleep disorders
F)suddenly increased ICT
G)psychogenic

Various cardiac,non cardiac or undetermined causes can result in syncope.A simple ECG can identify the multitude of cardiac causes resulting in syncope.Seizures can also cause alterations in consciousness levels and this can be differentiated from syncope with history and examinations. Migraine,Sleep disturbances,any cause of sudden increase in intra cranial tension and psychogenic factors also cause transient loss of consciousness.As with any other cause of loss of consciousness,patients with episodic loss of impaired consciousness also is evaluated from history by a reliable attender,biochemical and imaging modalities.

Comatose patient presenting to an emergency room is always a challenge to the attending physician,especially the non traumatic coma.Prompt and precise diagnosis helps to give adequate and appropriate treatment immediately, thereby increasing patients chance of recovery[1].

AIM

To find out usual and rare causes of coma

METHODOLOGY

Source of data.

This study was conducted at Mahatma Gandhi Memorial Govt.Hospital attached to K A P V Govt.Medical College Trichy

Study design

Descriptive study

Period of study:

November 2014 to August 2015
Approval was obtained from Institutional Ethics committee

Inclusion criteria:

Age >12 yrs <80 yrs
Comatose patients presenting to emergency room with non traumatic causes

Exclusion criteria

Age<12 yrs
Coma due to head injury

Consent

An informed consent was obtained from relatives of all participants

Method:

In this study,60 participants aged >`12years presented to emergency room in Medicine from November 2014 to August 2015 were evaluated after getting informed consent from legal guardian.History taking and clinical examination was done and recorded in the form of proforma.History included age ,sex,duration of illness/duration since last seen as normal,precipitating factors or events,symptoms preceeding illness,risk factors.

Detailed head to foot examination,Neurological and other system examination was done.Consciousness level was assessed using GCS,AVPU Scale and FOUR score coma assessment at admission,24,48 and 72 hours depending on

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individual patients and prognosis evaluated.

CT scan brain was done for all cases at admission to find out any structural causes and blood investigations to elucidate non structural causes of coma

Stastical analysis:
Stastical analysis was done using percentage, mean values, standard deviation, standard error, Chi square test. SPSS version 2 was used to analyse data. The level of significance used was 0.05 levels for the corresponding degree of freedom to draw inference. A p value < 0.05 was considered significant statistically and value > 0.05 was considered to be not statistically significant.

RESULTS

TABLE:1 AGE

Particulars	Frequency (n=60)	Percentage -100%
13 to 33	13	21.7
34 to 54	24	40
55 to 75	20	33.3
76 & above	3	5

TABLE :2 SEX

Particulars	Frequency (n=60)	Percentage -100%
Male	37	61.7
Female	23	38.3

TABLE :3 DURATION OF ILLNESS

Particulars	Frequency (n=60)	Percentage -100%
Below 6hrs	27	45
6 to 24hrs	11	18.3
24 to 48hrs	11	18.3
48hrs & above	11	18.3

TABLE :4 SYMPTOMS

BREATHLESSNESS	8	13.3
FEVER	3	5
FEVER HEADACHE	5	8.3
FEVER,BODY STIFFNESS	2	3.3
FEVER,DYSURIA	1	1.7
FEVER,HIGH COLORED URINE	1	1.7
INCREASED SALIVATION	1	1.7
INCREASED SWEATING,SALIVATION	2	3.3
JAUNDICE	1	1.7
NO SYMPTOMS	24	40
TIA	7	11.7
UGI BLEED	4	6.7
VOMITING	1	1.7

TABLE :5 RISK FACTORS

Particulars	Frequency (n=60)	Percentage -100%
NIL	36	60
HTN	13	21.7
DM	6	10
CKD	1	1.7
DM/HTN	1	1.7
HTN/DM/ CAD	3	5

TABLE :6 GCS AT ADMISSION

Particulars	Frequency (n=60)	Percentage -100%
Below 8	51	85
Above 8	9	15

TABLE :7 GCS AT 24 HOURS

Particulars	Frequency (n=60)	Percentage -100%
Below 8	54	90
Above 8	6	10

TABLE :8 AVPU AT ADMISSION

Particulars	Frequency (n=60)	Percentage -100%
U	48	80
P	12	20

TABLE:9 AVPU AT 24 HOURS

Particulars	Frequency (n=60)	Percentage -100%
No	17	28.3
U	30	50
P	13	21.7

TABLE 10:RBS

Particulars	Frequency (n=60)	Percentage -100%
55 to 70	1	1.7
71 to 110	34	56.7
111 to 140	13	21.7
140 & above	12	20

TABLE :11 S.CREATITINE

Particulars	Frequency (n=60)	Percentage -100%
Below 1.20	43	71.7
Above 1.20	17	28.3

TABLE :12 S.SODIUM

Particulars	Frequency (n=60)	Percentage -100%
125 to 135	22	36.7
136 to 155	37	61.7
156 & above	1	1.7

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TABLE :13 S.POTASSIUM

Particulars	Frequency (n=60)	Percentage -100%
Below 3.5	4	6.7
3.5 to 5.5	52	86.7
5.5 & above	4	6.7

TABLE :14 LIPID PROFILE

Particulars	Frequency	Percentage
	(n=60)	-100%
T.CHOL		
<190	41	68.3
>190	19	31.7
LDL		
Below 70	2	3.3
71 to 190	57	95
190 & above	1	1.7
HDL		
Below 40	3	5
40 to 60	52	86.7
60 & above	5	8.3

TABLE :15 ECG

Particulars	Frequency (n=60)	Percentage (100%)
LVH	5	8.3
LVH WITH	1	1.7
NSR	47	78.3
S.BRADYC	2	3.4
S TACHYC	5	8.3

TABLE :16 CT BRAIN (PLAIN)

Particulars	Frequency	Percentage
	(n=60)	-100%
ACUTE L MCA INFARCT,OLD R MCA INFARCT	1	1.7
AGE RELATED CEREBRAL ATROPHY	2	3.3
AGE RELATED CEREBRAL ATROPHY,HYDROCEPHALUS	1	1.7
BILATERAL CEREBELLAR ICH WITH BRAINSTEM ICH	1	1.7
BRAINSTEM ICH	7	11.7
DIFFUSE CEREBRAL EDEMA	2	3.3
HYDROCEPHALUS	4	6.7
LEFT CAPSULO GANGLIONIC ICH	1	1.7
MALIGNANT INFARCT LEFT MCA WITH MASS EFFECT	1	1.7
MASSIVE LEFT MCA INFARCT	3	5
MASSIVE RIGHT MCA INFARCT	1	1.7
NORMAL	31	51.7
RIGHT CAPSULOGANGLIONIC ICH	1	1.7
RIGHT CAPSULOGANGLIONIC ICH WITH IVE	1	1.7
RIGHT FRONTO TEMPORAL ICH WITH IVE;SAH	1	1.7
RIGHT TEMPOROPARIETAL ICH WITH IVE,HYDROCEPHALUS	1	1.7

TABLE :17 DIAGNOSIS

Particulars	Frequency (n=60)	Percentage -100%
ADDISONIAN CRISIS	1	1.7
ATTEMPTED HANGING WITH HIE	5	8.3
BACTERIAL MENINGITIS	3	5
CKD UREMIC ENCEPHALOPATHY	1	1.7
CVA BRAISTEM ICH	3	5
CVA ICH	4	6.7
CVA L HEMIPLEGIA	5	8.3
CVA L HEMIPARESIS	1	1.7
CVA R HEMIPLEGIA	3	5
CVA R HEMIPARESIS	1	1.7
DCLD HEPATIC ENCEPHALOPATHY	2	3.3
DCLD UGI BLEED	1	1.7
GBS WITH RESPIRATORY FAILURE	1	1.7
HEPATIC ENCEPHALOPATHY	2	3.3
HYPERGLCEMIC HYPEROSMOTIC STATE	1	1.7
HYPOGLYCEMIA	1	1.7
KURUNAI POSONING	1	1.7
LYZOL POISONING	1	1.7
MARQUIS DISEASE	1	1.7
MENINGOENCEPHALITIS	2	3.3
NEUROLEPT MALIGNANT SYNDRONE	2	3.3
OPC POISONING WITH RESP.FAILURE	4	6.7
RAT KILLER POISONING	1	1.7
RECURRENT CVA	1	1.7
SEPTIC SHOCK	2	3.3
SNAKE BITE WITH NEUROPARALYSIS	6	10
T2DM UREMIC ENCEPHALOPATHY	1	1.7
TBM	1	1.7
UNKNOWN POISONING	1	1.7
UREMIC ENCEPHALOPATHY	1	1.7

DISCUSSION

This study was conducted to find out the causes of coma in non head injury cases in our part of the country,

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60 adults presented to MGM GH attached to KAPV Govt Medical College in an unconscious state was the study population. Biochemical, Hemato pathological and imaging studies were done for all cases to find out the cause and scores were given at admission and 24,48,72 hours to assess prognosis.

AGE
Middle and old age patients were more affected than young adults[2](78.3% against 21.7%).

Old age patients with coma had CVA as common cause while young adults presented with poisoning or attempted hanging.

Infections were common for both groups and bacterial meningitis and tuberculous meningitis

SEX
Male preponderance was there (61.7%) similar to other studies[3]

DURATION OF ILLNESS
In 45% of cases short duration of illness was noted(< 6 hrs),the rest all-namely 6-24hrs,24-48 hrs,>48 hrs showed equal percentage

SYMPTOMS
40% were not having any symptoms preceeding or associated with the
illness.13% had breathlessness and 11.7 % had TIA

RISK FACTORS
1)LIPID PROFILE
54 % was found to be dyslipidemic during the study.
Total cholesterol was in high normal range in 13 patients(21.6%)
11 had high normal T.Cholesterol(18.3%).
T.cholesterol was found to be stasticaly significant (p value-.000)
22 out of 60 had elevated LDL cholesterol(36.6%)
LDL was statisticaly significant(p value-.024)
HDL cholesterol was found to be in normal range
HDL was not statistically significant(p value-.960)

2)HYPERTENSION/DIABETES/CAD/CKD
13 out of 60 were known hypertensives(21.7%)
All hypertensives were having impaired lipid profile in the form of high normal T.Cholesterol or high LDL
6 had diabetes(10%)
All diabetic patients were invariably dyslipidemics;had elevated T.Cholesterol
1was CKD patient.1had Hypertension and CKD and 3 were having Hypertension,CKD and CAD.
CAD patients also had high T.Cholesterol and HDL

Those with hypertension as risk factor had predilection for stroke;more for ICH as seen in other studies

GCS Score:
85% were having scores < 8 at admission and 90% were having < 8 score after 24 hours.

Patients with low score had poor prognosis as compared to other studies[4]

18 patients with GCS less than or equal to 8 expired within 24 hours of admission

GCS at admission less than 8 was statisticaly significant[5](p-value:0.047)

AVPU score
80 % were unconscious at admission and out of that,28 % expired at 24 hours.

50 % of the remaining were unconscious at 24 hrs.

17 patients who were unconscious at admission expired within 24 hours

AVPU score at admission was statistically significant(p value:0.042)

RBS
Only 1 person had Hypoglycemia and 12 patients had RBS more than 140.All the rest
were in normal range.
Hypoglycemic patient had an RBS of 55 g,and she regaines consciousness after 25% dextrose infusion

One patient had Hyperglycemic Hyperosmolar state with an RBS of 632 g

S.CREATININE
17 out of 60 participants had values more than 1.2 mg.

Two patients were known CKD with uremic encephalopathy(S.Creatinine 14.8 and 10.1)

Three patients following snake bite also had high creatinine values.

S.SODIUM
37 patients out of 60 had sodium in normal range.

One had a value of 156(CKD patient) and 22 had values less than 135 but none had values below 125.Hence hypernatremia and hyponatremia as a cause of metabolic coma was ruled out.

S.POTASSIUM
52 had normal potassium values,4 had hypekalemia and 4 had hypokalemia

None of the patients were symptomatic for hyper or hypokalemia

S.CALCIUM
Even though calcium levels in the study population was 7.6,there was no clinical

evidence of either hypocalcemia or hypercalcemia

DIAGNOSIS
Most common etiologic diagnosis was CVA-18 cases(30%) followed by poisoning-7 cases(11%) and snake bite -6 cases(10%)and attempted hanging 5 cases(8%)

Of the CVA cases,haemorrhage was the leading cause-13 out of 18 were ICH(72%)

In haemorrhage,there was

7 brainstem ICH,(53%)
3 capsuloganglionic ICH with Intra ventricular extension(IVE)
(23%)

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1 fronto temporal ICH with IVE and SAH;(7%)
1 bilateral cerebellar ICH with brainstem ICH (7%)
1 temporoparietal ICH with IVE (7%)

Remaining 5 CVA cases were Infarct;4 being massive MCA infarct and 1 being malignant infarct with mass effect.

OPC poisoning topped the list of poisoning,with 4 out of 7 were OPC poisoning with respiratory failure.

1 case of Kurunai poisoning with respiratory failure,1 case of Lyzol poisoning with respiratory failure,1 Unknown tablet poisoning with respiratory failure and 1 Rat killer paste poisoning with fulminant hepatic failure .
6 out of 60 cases were snake bite(10%)
Three were with neuroparalysis,two developed uremic encephalopathy following AKI;one had coagulopathy,manifesting as Brainstem ICH.

There were 5 cases of attempted hanging with Hypoxic ischemic encephalopathy

Of the remaining coma cases,

Bacterial meningitis-4 cases
Hepatic encephalopathy stage 4-3 cases
TBM-2
Urosepsis-2
Neurolept malignant Syndrome-2
Hypoglycemia-1
Hyperglycemic Htperosmolar state-1
MODS-1
Marquis disease-1
Addisonian crisis-1
GBS with respiratory failure-1

CONCLUSION

1)Most common cause of non traumatic coma in our study is due to non structural causes
2) Age wise,common cause of coma is
a)Toxic/metabolic-young age

b)cerebrovascular accident-old age

c)infections-equal in both age groups

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