

Predictors of outcome in non traumatic coma at tertiary care hospital, Latur, Maharashtra

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Abstract

Introduction: Non traumatic or medical coma can result from wide range of primary etiologies and accounts for high morbidity and mortality. Coma ordinarily implies a poor prognosis and early prognostication is important for treatment decisions. The study was undertaken to study the factors associated with mortality in nontraumatic coma in a tertiary hospital in Latur, Maharashtra. **Materials and Methods:** In this prospective observational study, Adults with clinically confirmed coma, Glasgow coma scale (GCS) score of ≤ 8 , admitted consecutively to the emergency unit of a tertiary hospital over period of 2 years were consecutively recruited. Etiology of coma was determined on the basis of history, clinical examination, relevant laboratory and radiological investigations. Outcome, over one month was recorded. Functional outcome of the survivors was assessed with Glasgow Outcome Scale. **Results:** A total of 136 (84 males, 52 females) patients were recruited. Predominant etiologies identified were stroke followed by infections metabolic encephalopathy, poisoning. Whereas etiology was undetermined in 5.9% patients. Mortality was 46.3%. Low GCS score on admission, duration of coma, time lapsed between onset of coma and presentation to emergency unit age >50 years, abnormal blood pressure on admission and absent pupillary reflex were observed to be statistically significant predictors of outcome of non traumatic coma. **Conclusion:** Overall non traumatic coma has poor prognosis. age >50 years, abnormal blood pressure on admission, absent pupillary reflex Low GCS score on admission, duration of coma, time lapsed between onset of coma and presentation to emergency unit are important predictors of mortality of non traumatic coma.


Keywords: Coma, etiology, mortality, outcome, predictors.

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INTRODUCTION

A coma is a state of unconsciousness in which a person, cannot be awakened, fails to respond normally to painful stimuli, light or sound, lacks a normal sleep-wake cycle and does not initiate voluntary actions.² Non traumatic or medical coma is a common cause of admission in emergency unit, medical wards and intensive care unit. It can result from wide range of primary etiologies. It accounts for high morbidity and mortality. Coma

ordinarily implies a poor prognosis and early prognostication is important for treatment decisions.³ Coma occurring in the course of an illness traditionally implies a poor prognosis¹, because patients admitted to hospital in coma from causes other than trauma have a high mortality, in some situations, comparison has to be drawn between the highly demanding care required and the poor outcome. Thus, early decisions about the intensity of treatment and about the need to use artificial ventilation would be greatly simplified if healthcare givers could select early in the illness factors related to good quality survival and perhaps more importantly, delineate those patients with almost no chance of independent recovery.^{2,4} The current study was undertaken in an attempt to determine factors predicting outcome of nontraumatic coma among adult patients in a tertiary hospital in Latur, Maharashtra.

MATERIAL AND METHODS

In this prospective observational study, 136 adults admitted consecutively to the medical emergency unit of

the tertiary care hospital, Latur over a period of 24 months (From November 2013 to October 2015) were recruited.

Inclusion Criteria

- Adults with clinically confirmed coma [glasgow coma scale (gcs) score of ≤ 8]¹, admitted consecutively to the emergency unit of a tertiary hospital.
- Age ≥ 14 years.

Exclusion Criteria

- Comatose patient having h/o of significant trauma.
- Patients less than 14 years of age.
- Relatives not giving consent.

After initial stabilization detail history was obtained, assessment level of consciousness, GCS score were carried out on all the patients. Clinical signs like heart rate, blood pressure, pupillary reflexes, presence of any focal neurologic deficit and findings on fundoscopy were noted. Etiology of coma was determined on the basis of history by relatives or paramedics, clinical examination and relevant laboratory investigations. Routine investigations like haemogram, renal and liver function test, blood sugar, sr.electrolytes were performed. Investigations, such as lumbar puncture, CT scan / MRI Scan and metabolic work-up, EEG depending on the clinical presentation were performed. Following initial evaluation in emergency unit, the patients were transferred to intensive care unit where they had further treatment. Standard practice guidelines, as contained in the protocol of the hospital, were used in the management of the patients. Monitoring was carried on hour to hour and daily basis for a minimum period of 1 month. Outcome was assessed within or at the end of one month of the onset of coma as either death or survival. Glasgow

Outcome Scale (GOS) was used to assess functional outcome of the patients.

Data analysis

Stastical package for social science (SPSS, IBM) version 21.0 and MS Excel used for analysis of data. Univariate analysis was carried out by Pearson Chia-square for categorical variables. P value <0.05 was considered as significant.

RESULTS

Total 136 patients of non-traumatic coma who fulfilled the inclusion criteria were included in this study. They comprised 84 males and 52 females with mean age of 53.94. Ninety nine (72.8%) presented to the emergency unit of the hospital within 24 hrs of onset of coma, thirty seven (27.8%) after 24 hours.

We observed 46.3% overall mortality in our study. Out of 136 coma patients 63 (46.3%) patients died and 73 survived.

MORTALITY RATE IN NON TRAUMATIC COMA

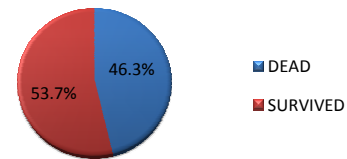
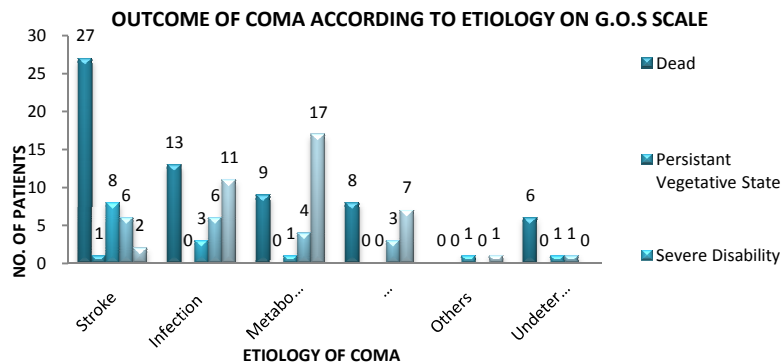


Figure 1:

Among various etiologies studied, stroke patient had 61.4% mortality whereas infections had 39.4%, metabolicencephalopathy had 29%, poisoning had 44.4%, undetermined cases had 75% of mortality. (figure 2)



When compared other causes of coma as a whole, more deaths were recorded in stroke group with which was found to be statistically significant. ($p < 0.05$). We found in our study that low GCS score on admission was

associated with high mortality. 76.8 % of patients in whom GCS score on admission was between 3-5 died, whereas only 14.9% of those had died in whom GCS score on admission was 5-8. We observed in our study

that time for which patient remained in coma had influence on outcome. Patient in whom coma last for short duration of time had better outcome. It has observed in our study that time lapsed between onset of coma and presentation to emergency unit had effect on outcome of coma. 62.6% of patients presented within 24 hours of onset of coma had survived as compared to only 29.8% patients presented after 24 hours of onset of coma had survived. The statistically significant predictors of

outcome observed in our study were age more than 50 yrs, abnormal blood pressure on admission, absent pupillary reflex, etiology of coma, low GCS score on admission, duration of coma, time lapsed between onset of coma and presentation to hospital. We also observed that gender of patient, pulse rate on admission, papilloedema, and presence of focal neurological deficit was not significantly associated with outcome of coma (Table 1)

Parameters	Variables	No. of patients	No. of patients died	Percentage (%)	Chia-square Value	P value
Age	<50 years	60	19	31.7	9.276	<0.01
	> 50 years	76	44	57.9		Significant
Sex	Male	84	40	47.6	0.148	>0.05
	Female	52	23	44.2		Not significant
Pulse rate	Normal	44	19	43.2	0.258	>0.05
	Abnormal	92	44	47.8		Not significant
Blood Pressure	Normal	87	33	37.9	6.84	<0.01
	Abnormal	49	30	61.2		Significant
Pupillary reflex	Present	121	48	39.7	19.536	<0.001
	Absent	15	15	100		Significant
Focal neurologic deficit	Present	52	29	55.8	3.02	>0.05
	Absent	84	34	40.4		Not significant
Papilloedema	Present	28	16	57.1	1.660	>0.05
	Absent	108	47	43.5		Not significant
Etiology	Stroke	44	27	61.4	9.146 (d.f- 4)	<0.05
	Infection	44	13	39.4		Significant
	Metabolic encephalopathy	31	09	29		<0.001
	Poisoning	18	08	44.4		Significant
GCS on admission	Others	10	06	60	52.359	<0.001
	3-5	69	53	76.8		Significant
Duration of coma	6-8	67	10	14.9	35.522	<0.001
	1-2 days	50	8	16		<0.001
	3-4 days	45	24	53.3		Significant
Time since coma	>4 days	41	31	75.6	8.46	<0.01
	<24 hours	99	37	37.3		Significant

DISCUSSION

Non traumatic coma is common mode of presentation to emergency unit.⁵ Majority of patients (65.4%) were in 41-80 yrs age group. Similar results were found in study done by Owolabi FL *et al*⁶. In this study, 61.8% of the patients were males. Many studies had also reported a high male to female ratio in medical coma.^{7,8,9} Male predominance may be attributed to presence of more risk factors like smoking, alcohol consumption among males.¹⁰ In our study 27.2 % of patients of coma were presented to the emergency unit after 24 hours of onset of coma. This was probably attributed to poor socioeconomic conditions, lack of transportation facility in area of study. This can be improved by strengthening health care delivery system. The predominant etiological factors for non traumatic coma identified in our study were stroke, infection, metabolic encephalopathy,

poisoning. However, when the etiological factors were considered individually, stroke appeared the most common cause. Comparable results were seen in various other studies.^{7,8,9,11,12} This emphasizes the need to implement effective primary preventive measures for stroke. Etiology could not be determined in 5.9% of patients which should be considered in view of limited investigation facility.¹² The mortality rate of 46.3% recorded in the present study, although comparable to report from other studies.^{9,13,14} The statistically significant predictors of outcome observed in our study are age more than 50 years, abnormal blood pressure on admission, absent pupillary reflex, etiology of coma, low GCS score (3-5) on admission, duration of coma, late presentation to the hospital. We also observed that gender of patient, pulse rate on admission, papilloedema, and presence of focal neurological deficit was not

significantly associated with coma. Similar results were noted by Owolabi F.L *et al*⁶, they observed that age, blood pressure on admission, etiology, late presentation, GCS score were important predictors of outcome. Hypertension, diabetes mellitus, alcohol consumption, smoking are important risk factors of non traumatic coma.

CONCLUSION

Stroke, central nervous system infection, hepatic and renal failure and poisoning are important and common causes of non traumatic coma. Medical coma was associated with high mortality rate, the benefit of preventive measures as well as adequate intensive care services cannot be overemphasized. Age of patient, abnormal blood pressure on admission, absent pupillary reflex, etiology of coma, low GCS score (3-5) on admission, duration of coma, late presentation to the hospital are important predictors of outcome of non traumatic coma.

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