

Non-Traumatic Coma in Internal Medicine: Epidemiological, Clinical, Etiological, and Therapeutic Aspects

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Abstract

Introduction: Non-traumatic coma is a severe alteration of consciousness defined by a Glasgow Coma Scale (GCS) score $\leq 8/15$, occurring in the absence of any head injury. It constitutes a frequent medical emergency, associated with high mortality, particularly in resource-limited countries. This study aims to analyze the characteristics, etiologies, and prognostic factors of non-traumatic coma in the Internal Medicine department at Donka University Hospital. **Methodology:** This was a prospective, descriptive, and analytical study conducted over a 6-month period (August 1, 2025 to January 31, 2026). We included all adult patients (aged ≥ 16 years) admitted for non-traumatic coma (Glasgow Coma Scale $\leq 8/15$). Data were collected from medical records and analyzed using R software. A descriptive analysis and multivariate logistic regression were performed to identify factors associated with death. **Results:** The most represented age group was between 36 and 59 years old (62.6%), with an average age of 53 years ± 9 years and a male predominance (59%). Mortality was high (80%). The main etiologies were hepatic encephalopathy (59.4%), septic shock (12.2%), and stroke (ischemic/hemorrhagic) (8.1%). In bivariate analysis, male sex and hepatic encephalopathy were associated with an increased risk of death, while marital status (married) had a protective effect. **Conclusion:** Non-traumatic coma at Donka University Hospital is a serious condition with a high mortality rate. Better prevention of chronic diseases and early intervention could improve the prognosis.

Keywords

Non-Traumatic Coma, Internal Medicine, Donka University Hospital

1. Introduction

Coma is defined as a profound and sustained impairment of consciousness and wakefulness that is not reversible by external painful stimuli. It reflects failure of the ascending reticular activating system of the brainstem, the neurological substrate of wakefulness. Clinically, coma is defined by a Glasgow Coma Scale score of 8 or less and is considered non-traumatic when it occurs in the absence of head trauma that could injure the ascending reticular activating system. It is a diagnostic and therapeutic emergency because a comatose patient may progress to brain death, a vegetative state, or rapid recovery of consciousness [1]-[3]. Non-traumatic coma is a relatively common pathological condition whose management and prognosis depend on the etiology, the availability and quality of human resources, the technical resources of the receiving intensive care unit, and the socioeconomic level of the country [4]. It is a serious neurological sign requiring rapid identification of the cause and early, appropriate management [5]. Non-traumatic coma continues to have a poor prognosis, with very high morbidity and mortality, particularly in Africa, where a mortality rate of 82.25% has been reported [6]. The prevalence of disorders of consciousness ranges from 0.4% to 5% in emergency departments according to different studies, with predominantly neurological, metabolic, and infectious etiologies in the absence of trauma [5].

In Africa, the overall prevalence ranged from 5% to 8% in intensive care units. In Mali, Sissoko *et al.*, in 2023, found a frequency of 5.01% for non-traumatic coma in the emergency department [7]. Malaria was the leading diagnosis in 50.7% of cases, followed by toxic and metabolic encephalopathy in 17.6%; bacterial meningoencephalitis was confirmed in 12 patients (5.9%), with a mortality rate of 68.6% [8]. In Guinea, Touré, in their study on the morbidity and mortality of hemorrhagic strokes, reported a Glasgow Coma Scale score of ≤ 8 in 70.91% of patients, with a mean Glasgow Coma Scale score of 7.5 ± 2.5 [9]. Focusing on non-traumatic coma makes it possible to address underlying causes, consider appropriate treatments, and prevent serious complications in order to improve patient outcomes.

2. Methodology

This was a prospective descriptive and analytical study with data collection lasting 6 months, ranging from August 1, 2025 to January 31, 2026. We included in this study all hospitalized patients presenting with loss of consciousness and a SG $\leq 8/15$ regardless of the cause, the diagnostic criteria for the main etiologies such as hepatic encephalopathy (psychomotor slowing, temporospatial disorientation, asterixis, and a reversal of the sleep-wake cycle associated with West Haven classification in the context of liver disease), septic shock (Sepsis with persistent hypotension despite adequate fluid resuscitation requiring vasoactive drugs to maintain a mean arterial pressure ≥ 65 mmHg and a lactate level > 2 mmol/L), stroke (a sudden onset focal neurological deficit confirmed with a scan or MRI), as well

as the causes metabolic, systemic, and neoplastic, including pupillary responses (mydriasis, anisocoria, miosis), vital signs, and neurological signs hospitalized in our intensive care units in internal medicine participants, regardless of sex or age (16 years or older), from any background, who agreed to participate in the study, were included. Information concerning patients with non-traumatic coma was extracted from the hospital information system's medical records and admission forms in the Internal Medicine department of Donka University Hospital. The necessary information was obtained from caregivers, family members, or close relatives present during the patient's hospitalization. This data included medical history, previous treatments, the circumstances of symptom onset, and any potential triggering factors. This information was supplemented and verified using the medical records and hospitalization notes in the hospital information system. The information was recorded on questionnaires for each patient, and each questionnaire was checked to ensure data accuracy and minimize transcription errors. The information was coded using a standardized method to allow for consistent analysis. The collected data were analyzed using the R software. The data were obtained with the free and verbal consent of the person responsible for or trusted by the patient before the coma. The information collected from medical records was used solely for scientific purposes and in strict compliance with confidentiality. The collected data were used exclusively within the framework of this research and were not used for any purpose other than that of the study.

3. Result

Out of a total of 572 hospitalized patients, we collected 123 cases, or 21.5% (**Figure 1**).

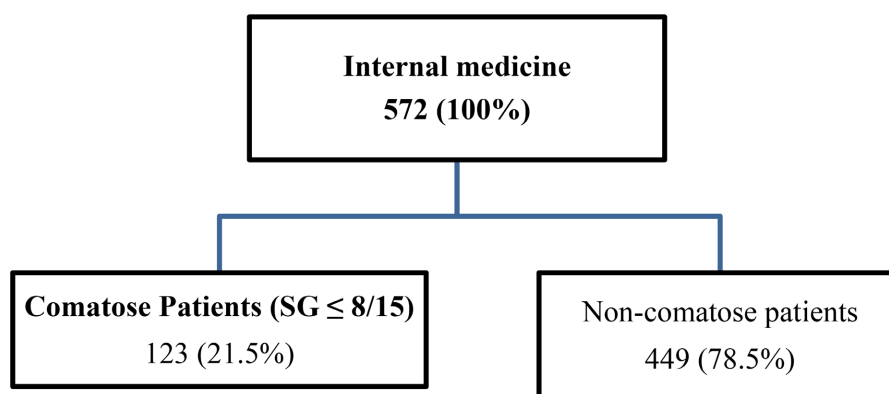


Figure 1. Flow diagram of patients received throughout the department and their distribution.

The death rate of comatose patients was high, at 80%, compared to a survival rate of 20% (**Figure 2**).

In our study, 59% of patients were male, indicating a male predominance among adults admitted for non-traumatic coma (**Figure 3**).

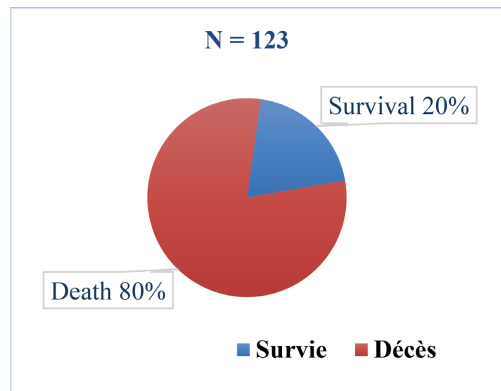
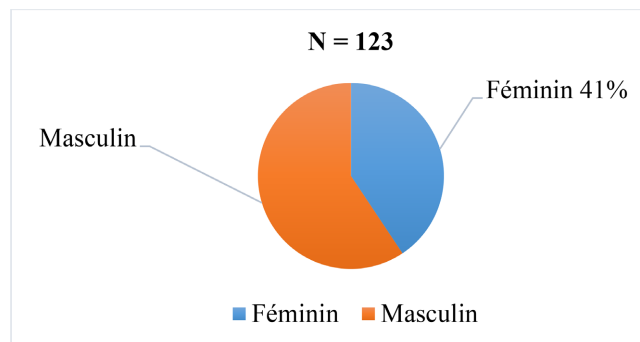


Figure 2. Prevalence of death in patients with non-traumatic coma.



Male/Female sex ratio: 1.46.

Figure 3. Distribution of patients with non-traumatic coma according to sex.

Table 1. Distribution of patients with non-traumatic coma according to medical history and underlying conditions.

History/Predisposition	Staff	Percentage
HBV	30	24.4
HTA	21	17.1
Type II Diabetes	15	12.2
Previous Stroke	4	3.3

In our study, the most frequent predisposing factors for non-traumatic coma in adults were HBV (24.4%), hypertension (17.1%), and diabetes (12.2%) (**Table 1**).

In our study, the 36 - 59 age group represented the majority of patients admitted for non-traumatic coma at 62.60% (**Table 2**).

Regarding marital status, married people were the most represented (49.6%), followed by single people (40.7%).

Patients with an SG score between 5 and 8 were the majority, representing 48% (**Table 3**).

Hepatic encephalopathy was the predominant etiology in comatose patients, accounting for 59.4% (**Table 4**).

Table 2. Distribution of patients with non-traumatic coma according to sociodemographic characteristics.

Variables	Effective	Percentage
Age		
28 - 35	4	3.3
36 - 59	77	62.6
≥60	42	34.1
Average Age: 53 years ± 9 years		
Marital status		
Bachelor	50	40.7
Bride	61	49.6
Widowed	12	9.8
Occupation		
Official	24	19.5
Housewives	30	24.4
Informal occupation	43	35.0
Freelance profession	26	21.1
Residential area		
Dixinn	13	10.6
Kaloum	12	9.8
Matam	11	8.9
Matoto	66	53.7
Ratoma	21	17.1

Table 3. Distribution of patients with non-traumatic coma according to Glasgow Coma Scale score and imaging assessment.

Variables	Effective	Percentage
Glasgow score		
3 - 4	27	22.0
5 - 6	37	30.1
7 - 9	59	48.0
Imaging report		
Abdominopelvic ultrasound	87	70.7
Abdominopelvic scan	33	26.8
Chest X-ray	4	3.3
Brain scan	8	6.5

Table 4. Distribution of patients with non-traumatic coma admitted to the Internal Medicine Department at Donka University Hospital according to etiology.

Etiology	Effective	Percentage
Hepatic encephalopathy (cirrhosis)	73	59.4
Stroke (ischemic/hemorrhagic)	10	8.1
Septic shock	15	12.2
Cholangiocarcinoma	3	2.4
Tumor of the head of the pancreas	7	5.7
Diabetic ketoacidosis	5	4.1
Severe malaria	6	4.9
Pulmonary embolism	3	2.4
Neurolupus	1	0.8

Table 5. Distribution of patients with non-traumatic coma according to the list of admitted medications.

Variables	Effective	Percentage
Drugs		
Painkillers	85	69.1
Antibiotics	62	50.4
Antihypertensive	7	5.7
Insulin injection	6	4.9
Solution	115	93.5
Proton pump inhibitor	31	25.2
Lactulose	77	62.6
Anticoagulant	7	5.7
Diazepam	1	0.8
Nutritional supplement	17	13.8

The most commonly used medications were: Solution (93.5%), analgesics (85%), lactulose (62.6%), and antibiotics (50.4%) (**Table 5**).

In the bivariate analysis, two factors were significantly associated with death in adult patients with non-traumatic coma: male sex and marital status. Men had a significantly higher risk of death than women (p -value < 0.001) (**Table 6**).

Married patients had a lower risk of death than single patients, with a p -value = 0.017.

In our study, bivariate analysis showed that the presence of hepatic encephalopathy was significantly associated with death in patients with non-traumatic coma, with a p -value = 0.013.

Table 6. Bivariate analysis of the evolution of patients with non-traumatic coma.

Variables	Total N = 123	Survival N = 24	Death N = 99	p-Value ²
Slice				0.061
Young adult	4 (100%)	0 (0%)	4 (100%)	
Adult	77 (100%)	20 (26%)	57 (74%)	
Elderly person	42 (100%)	4 (9.5%)	38 (90%)	
Sex				<0.001
Female	50 (100%)	19 (38%)	31 (62%)	
Male	73 (100%)	5 (6.8%)	68 (93%)	
Residential area				0.006
Dixinn	13 (100%)	1 (7.7%)	12 (92%)	
Kaloum	12 (100%)	0 (0%)	12 (100%)	
Matam	11 (100%)	0 (0%)	11 (100%)	
Matoto	66 (100%)	21 (32%)	45 (68%)	
Ratoma	21 (100%)	2 (9.5%)	19 (90%)	
Marital status				0.014
Bachelor	50 (100%)	4 (8.0%)	46 (92%)	
Bride	61 (100%)	16 (26%)	45 (74%)	
Widowed	12 (100%)	4 (33%)	8 (67%)	
Medical/HVB				0.030
No	47 (100%)	6 (13%)	41 (87%)	
Yes	30 (100%)	10 (33%)	20 (67%)	
Temperature class				0.100
Hypothermia	14 (100%)	5 (36%)	9 (64%)	
Normal	87 (100%)	15 (17%)	72 (83%)	
Fever	17 (100%)	3 (18%)	14 (82%)	
Hyperthermia	1 (100%)	1 (100%)	0 (0%)	
Hepatic encephalopathy				<0.001
No	55 (100%)	40 (73%)	15 (27%)	
Yes	72 (100%)	14 (19.4%)	58 (80.6%)	

4. Discussion

Among a total of 572 hospitalized patients, we identified 123 cases, representing 21.5%. Regarding mortality, the rate observed among adult patients with non-traumatic coma was particularly high, reaching 80%. This high rate reflects the severity of non-traumatic coma and suggests that many patients present in critical

condition, often with significant comorbidities and limited access to specialized care. This high mortality is comparable to that reported in other African and international settings. For example, Mateso *et al.* (2023) in the Democratic Republic of the Congo observed a mortality rate of 73% among patients with non-traumatic coma [10], while Massi *et al.* (2024) in Cameroon reported an in-hospital mortality rate of 66.4% [11]. By international comparison, Kafle *et al.* in Nepal in 2021 reported a mortality rate of 43.9% among adult patients admitted to intensive care for non-traumatic coma, with the main risk factors being a low Glasgow Coma Scale score, sepsis, and impaired renal function [12]. In our study, 59% of patients were male, indicating a male predominance among adults admitted for non-traumatic coma. This predominance may be explained by greater exposure among men to cardiovascular, metabolic, and toxic risk factors, as well as more frequent risk-taking behaviors, which is consistent with several epidemiological studies of non-traumatic coma and neurological emergencies. In the Democratic Republic of the Congo, Mateso *et al.* (2023) reported that 62.8% of participants were men, confirming a male predominance in this severe neurological condition [10]. In our study, the most common medical histories among adults with non-traumatic coma were hepatitis B virus (HBV) infection (24.4%), arterial hypertension (17.1%), and diabetes (12.2%). The predominance of HBV may be explained by the fact that Guinea is an HBV-endemic area, where the infection can lead to severe complications involving the central nervous system. Hepatitis, particularly acute or decompensated chronic forms, is also a recognized cause of metabolic or hepatic coma, while poorly controlled hypertension can cause stroke, explaining its role in the occurrence of coma. These findings are consistent with several African studies. For example, Mateso *et al.* (2023) in the Democratic Republic of the Congo identified stroke (25.7%), metabolic complications of diabetes (21.9%), and cerebral infections (meningoencephalitis, 16%) as the most frequent causes of non-traumatic coma, highlighting the diversity of etiologies in African settings and the importance of metabolic and infectious diseases [10]. Similarly, a study conducted in Cameroon by Massi *et al.* (2024) showed that the main causes were ischemic stroke, severe infections, and intoxications, confirming the frequency of metabolic disorders and liver involvement in non-traumatic coma among adults [11]. These observations underscore the need for a comprehensive and rapid assessment of patients presenting with non-traumatic coma, including evaluation of a history of infectious diseases and cardiovascular risk factors. In our study, the 36 - 59-year age group.

5. Conclusions

This study shows that non-traumatic coma in adults in internal medicine at Donka University Hospital is a serious condition, characterized by a particularly high mortality rate. The main underlying causes and etiologies identified are dominated by liver disease, hypertension, and hepatic encephalopathy, highlighting the combined influence of chronic diseases and metabolic pathologies in the occur-

rence of non-traumatic coma in our context.

These results suggest several avenues for action: strengthening prevention and management strategies for chronic diseases such as liver disease and hypertension, raising public awareness of the risks associated with self-medication, and promoting rapid intervention for patients with altered levels of consciousness. Further studies would also allow for a deeper understanding of the determinants of non-traumatic coma and improve patient outcomes in the African hospital setting.

Author Contributions

Conceptualization, methodology, software, and validation: Dr. Kalil Nouny Sidibé, Dr. Mamadou Diakhaby, and Dr. Mohamed Cissoko; Formal analysis, resources, and data curation: Dre Mamamn Saley Halima; Writing—original draft preparation and writing—review and editing: Dr. Mohamed Lamine Conté, Dr. lanciné Kourouma, Dr. Aboubacar Dioubaté, Dr. Sâa Joseph Téliano, Dr. Mohamed Adama Oularé, Dr. Amara Magassouba, Dr. Kanté Mamadou Aliou II, Dr. Diallo Mamadou Tafsir, Dre Idrissa Diallo, Dr. Abraham Geopogui, Dr. Oumar Camara, Dr. Abdourahmane Diallo, Dr. Elhadj Salmana Diallo, Dr. Amadou Baillo Barry, and Dre Fatoumata Bah; Supervision: Pr. Djibril Sylla and Pr. Amadou Kaké. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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