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Non-traumatic Comas at the Emergency Reception Service of AristideLedantecHospital(ALDH): Epidemiological, Clinical, Paraclinical and Evolutive Aspects

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Abstract: ***Introduction: Non-traumatic comas were studied emergency reception service with the objective to describe the epidemiological, clinical, etiologic and prognosis in Dakar. Patients and methods: It was a descriptive cross-sectional study from June 2011 to June 2012 meaning a 12-month period on non-traumatic coma at emergency reception service of ALDH. Results: They were 39 patients (11.20% of admissions). The patients came to the emergency in urban taxis (over 60%) and 24 hours after installation of the coma (more than 80% of patients). Approximately one third of our patients run high blood pressure and neurological deficit was found in 15% of our patients. The etiologies were dominated by the uremic encephalopathy and cerebral malaria followed by diabetic coma, stroke and hepatic encephalopathy. Comatose patients without etiological diagnosis accounted for the largest proportion. Mortality was high (77% of patients) with a 100% mortality in patients with no etiological diagnosis and depth of the coma was a poor prognostic factor in our study. Conclusion: It is necessary to improve the technical facilities for pre-hospital and at the emergency reception service to improve diagnoses and mortality in comatose patients.***

Keywords: Coma, emergency, prognosis, Dakar

1. Introduction

A state of unresponsiveness from which the patient cannot be aroused by vocal or sensory stimuli. A state without evidence of awareness of self or environment whereas the vegetative function are maintained. It represents an absolute medical emergency that may carry the vital prognosis.

That's a frequent pathology and only a few studies have been done particularly in our areas and at the Emergency Reception Unit [3][4][5].

In Senegal, the performed studies on comas were realised in Specialized Units of Neurology and Infectious Diseases where respectively Sène-Diouf [6] found 43,18% whereas Soumare M.[7] found 11.4% of patients hospitalized for coma.

Noting the increasing number of patients hospitalized for coma and the rareness of specific studies on non-traumatic coma at the ERU, we perform this study.

2. Diseases and Methods

It's about a descriptive cross-sectional study based on hospitalized patients for non-traumatic comas in the ERU at Aristide Le Dantec Hospital from June 2011 to June 2012. It included all the adult patients with brain disorders.

The Glasgow coma scale was taken as reference for the diagnostic. The main goals were:

- General aim : studying the epidemiological, clinical, paraclinical, etiological and evolutive aspects of non-traumatic coma for adults at ALDH Emergency Reception Unit.
- Specific aims : define the frequency of adults non-traumatic comas at ALDH Emergency Reception Unit, define the clinical and paraclinical profiles of adult non-traumatic comas at ALDH Emergency Reception Unit, define the various etiologies of adult non-traumatic comas at ALDH Emergency Reception Unit, assess adult non-traumatic comas prognostic at ALDH Emergency Reception Unit.

3. Results

During the study (12months), 348 patients were admitted in the ERU. 39 out of them suffered from brain disorders, around 11,20%. We noted a male predominance with a sex ratio of 1,29 and the predominant age groups was 17-27 and 61-71 years of age.Figure1

The majority of the patients came by non-medical vehicles with urban taxis predominance at more than 60% and 80% of our patients came beyond 24 hours after the coma installation. figure2

Among the medical histories, High Blood Pressure figured the foreground with about one third of our patients, patients with Nephropathy and diabetes were respectively about 20% and 16%. Figure3

Most of the patients with pathologiacl medical history were under treatment in regards.

The coma installation was progressive for 82% of patients and abrupt for others.

The studied Glasgow coma score varied between 3 and 13 and the intervals of 3-6, 7-10 and 11-13 were considered. The proportions of patients by studied interval were close with a slight predominance of patients with a Glasgow score between 11 and 13. Figure4

A neurological deficiency was recorded on about 15% comatose patients.

The complementary investigations were abnormal for most of the used parameters.

In more than 23% of the patients, any cause was identified, followed by uremic encephalopathy and cerebral malariathat represented the more often met causes with respectively 20,5% and 17,9%. The proportion of Stroke, hepatic encephalopathy and diabetic coma were similar with 10,3% for each.

Severe sepsis encephalopathy was recorded in 2 patients (5,1%) and bacterial meningo-encephalitis in 1 patient (2,6%). Figure5

Diabetic coma was accounted at the age groups of 16-36 years, 37-56 years and 57-76 years with a slight predominance at the age group of 37-56 years and was missing at the age group of 77-96 years.

Cerebral malaria was recorded particularly at the youngs age group.

Regarding to the uremic encephalopathy, it was found in the fisrt age groups and was missing in the 77-96years age.

Patients without diagnosis were included in all the age groups with a predominance on young patients.

Encephalopathies occured on old patients (77-96years) running a severe sepsis.

Meningo-encephalitis was accounted on a young patient (16-36years), hepatic encephalopathy in the age groups of 16-36 years and 37-56 years and the strokes were particularly accounted on patients between 57 and 76 years. . Figure 6

For a Glasgow score between 3 and 6, we recorded all the diagnoses except hepatic encephalopathy with otherwise a high number of internee patients for cerebral malaria and patients without etiological diagnosis during their internship.

For a Glasgow score between 7 and 10, we could record all the diagnoses except severe sepsis and bacterial meningo-encephalitis. However, hepatic and uremic encephalopathies were dominating.

For a Glasgow score between 10 and 13, we found patients with severe sepsis, those hospitalized for uremic encephalopathy, diabetic coma and those without etiological diagnosis. Figure 7

Mortality occured on about 77% comatose patients with a higher proportion on patients with Glasgow scale between 3 and 6 followed by those between 7and 10

The mortality was high for all the comas etiologies. It occured in 100% on patients without etiologicaldiagnosis, suffering from severe sepsis and bacterial meningo-encephalitis. Figure 8

The rate for dead patients were otherwise highly improved in regard to the patients suffering from cerebral malaria compare to others diagnoses.Figure 9

4. Comments and Discussions

During our working session, we met some troubles : hardwork conditions, lack of appropriate therapeutic means, patients with financial issues, rareness of comparative studies.

We noted during the working session, in 317 admissions at the ERU, 39 cases of brain damage, Imboua A. J. [4], Kabaou M.S. [5], accounted respectively in Mali and Niger 25,39% and 13,9% of brain damage cases.Whereas in Senegal, Soumare M. [7] and Sene-Diouf [6] recorded respectively in Infectious Diseases and Neurology Units down Fann Hospital 7,4% and 43,18%.
The proportion of comatose patients was more important in our series than Soumare M. [7] ones from Infectious Diseases. On the other hand in Ressuscitation and Emergency units, the proportion of comatose patients was higher than ours. The high proportion of Sene-Diouf [6] series performed in a specialized Neurology Unit relies on the fact that most comatose patients were send for hospitalization and investigation.

This relatively important frequency in our series is influenced by the rareness of Emergency Units, the reception of non-traumatic coma whatever their origin (cardio-vascular, metabolic, infectious……) besides the low number of reception capacity in the ERU.

In our study, male represented 54,6% of cases and female 43,6% for a sex ratio of 1,29. These results confirm male predominance tendency either in Senegal with Soumare M. [7], in Mali with Ascofare I. [8], Imboua A.J. [4], in IvoryCoast with Gbobia R [3] and Angora S.[11], in Niger with Kabaou M.S. [5] regarding the hospitalization for non-traumatic coma.

The most frequent arrival mode was by taxis with a low proportion for medical vehicles (12,8% for private ambulances and 6,1% for public ambulances). These results were close to those from Mapoure [49] who recorded a non-medical transportation on 81 to 84% of comatose patients. This explains the carrying and pre-hospital care problems hence the necessity to promote in our areas the SAMU that is accessible on 1515 phone number and that can become a great alternative for particularly the management of comatose patients.

The most frequent arrival delay was beyond 24hours, these results are close to Mapoure [49] ones who accounted a long management delay varying between 47 and 138 hours. This can be explained by many factors : in one hand late consultation sometimes due to financial issues, on the other hand the difficult journey felt at times between hospitals where they cannot profit on the management because of a lack of technical and human resources.

In our study, High blood pressure occupied the foreground of the medical histories followed by Nephropathy and Diabetes with respectively 32%, 20% and at last 16%.

These results are close to those from Imboua A.J [4] who noted High Blood Pressure as the main medical history in his work with a proportion of 39,6%, Soumare M. [7] made the same remark with a proportion of 9 patients out of 23.
Kabaou M.S. [5] found Diabetes as the foreground with 27% cases.

Besides, we note the high prevalence for patients with nephropathy and hepatopathy medical histories (12%, and 20%) due to the proximity of gastro-enterology and nephrology units recently individualized but which in daily practice admit their emergencies at the ERU when there is no permanence in those units.

The installation mode was progressive in 82% patients whereas it was abrupt in 18%. So progressive comas installation dominated the abrupt ones. This is due to the fact that most of our patient were knowing a metabolic coma. And, according to some authors, the progressive installation of coma is in favor of a metabolic origin [1].

Kabaou M.S. [5] noted that 52% of patients had a Glasgow scale between 3 and 5 and 48% between 6 and 8. Imboua A.J [4] noted that 80,8% of patients were between 6 and 8 and 19,2% between 3 and 5. Ascofare I.C [43] recorded that 1,8% of patients had a score between 3 and 5, 37,2% were between 6 and 8 and 61% had a score more than 8.

Our results were different from Imboua A.J[4] ? Ascofare I.C [43] and Kabaou M.S [5] ones.

The proportion we noted in our work was close to the 3 intervals used for coma classification. The performed studies were realized in different units using various intervals ; Soumare M. [7] used the classification by stage and recorded a predominance of 1 to 57,7%stage.

Our results are closed to those from Kabaou M.S [5] and Soumare M. [7] with a high predominance of comas witout deficiency. This can be explained by the fact that most of the comatose patients with a deficiency presented stroke and were send to specialized neurology unit.

Our results are different from Gbobia R.E [3] and Imboua A.J [4] ones, for whom infectious comas were above the others causes. However according to Imboua A.J [4] (29,9%), Ascofare I.C [8] (14,54%) and Gbobia R.E [3], infectious comas were at the second level as we noted in our work.

Our results were close to those from Kabaou M.S [5] who recorded metabolic coma predominance. On the other hand, in our study the second etiology dominating was infectious comas whereas Kabaou M.S [5] found vascular origin of comas in second position. This is explained by emerging metabolic diseases and the nearness with nephrology and gastro-enterology units.

Contrary to the results got from Soumare M. [7] who noted a predominance of infectious etiologies and Mapoure [9] who certified a predominace of vascular causes, due to the fact that these studies are realized in a specialized unit.

We have called « unknown », the comas that there were no investigation to find out their etiology.

These investigations depended on the resources of the patient (or their family), the residence time, the accessibility and availability of explorations without excluding the management problem related to the approach and given care.

Our results are compared to Kabaou M.S [5] and Soumare M. [7] who respectively accounted about 14% and 52,7% of unknown cause of coma. This certified the diagnosis issues on coma.

We recorded 77% of death among 39 studied cases. Our results get close to most of the studies on coma whatever the area. This high percentage can be explained by management issues in response to either financial issue, lack of appropriate technical facilities and late diagnosis among others.

Authors tried to determine poor outcome factors of comas increasing the mortality of comatose patients. Mapoure [9] recorded infectious event occurrence during hospitalization and long term management as letal predictive factors whereas N.E. Ravelson [10] found as predictive factors : male sex, advanced age, medical histories(alcoholism, high blood pressure, stroke, chronic broncho-pneumopathies), the abruptness of coma installation and other parameters are responsible of coma and worsen the patient outcome : dehydration, hyperthermia over than 40°C, very high blood pressure or out of reach, polypnea over than 45cycles/min, low SpO2, tachycardia over than 140/min or bradycardia lower than 40/min.

High mortality was noted on patients without etiological diagnosis with a 100% mortality (9/9), patients running a severe sepsis (2/2) and bacterial meningo-encephalitis (1/1).

Low mortality was recorded on patients hospitalized for cerebral malaria (4/7) and diabetic coma (2/4). This mortality can be explained by the fact that the management of hospitalized patients for cerebral malaria or diabetic coma is well codified, contrary to the patients

without diagnosis and patients running a severe sepsis on whom either it's a symptomatic treatment or is not codified with a high mortality.

5. Conclusion

Non-traumatic comas are medical emergencies often met in the emergency reception units. They can carry the vital prognosis whatever the etiology and the depth of the coma. It's necessary to reinforce the ERU staff and technical facilities for a better management of comatose patients.

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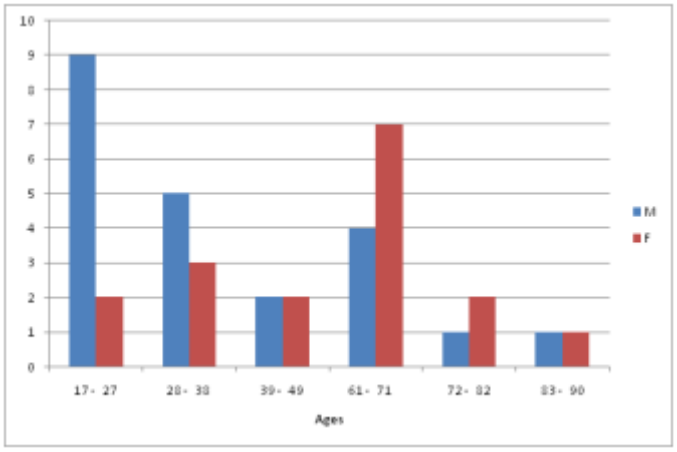

Figure 1: Distribution of patients by age and sex

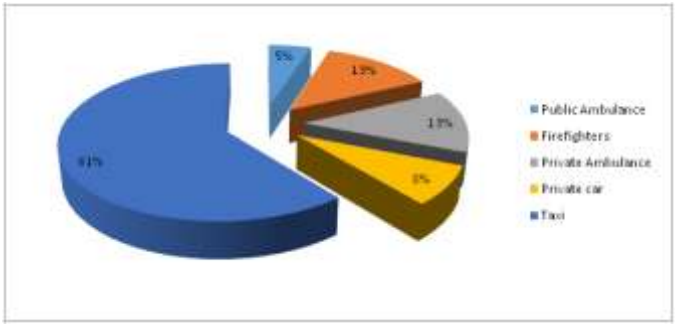

Figure 2 : Distribution of patients according to their arrival mode

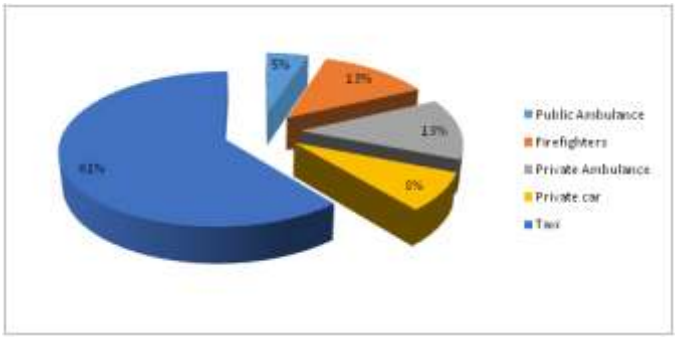

Figure3: Patient distribution according to medical history

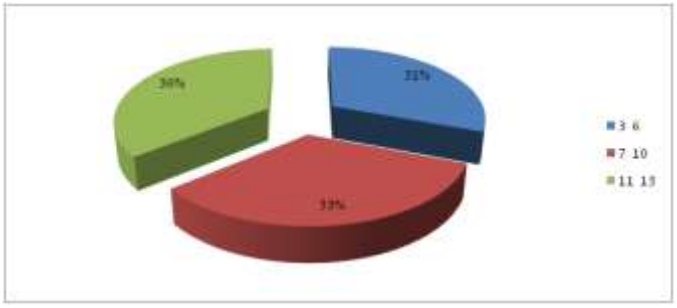

Figure 4: Distribution of patients by Glasgow score at admission

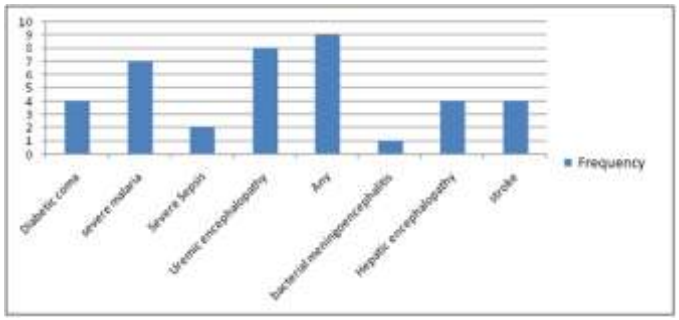

Figure 5: Distribution of patients according to the etiology retained

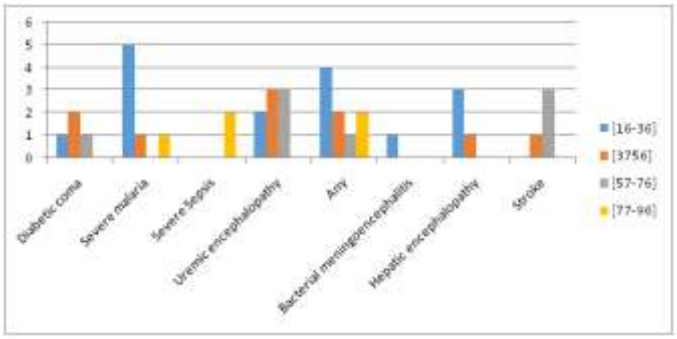

Figure 6: Distribution of patients according to the etiology retained and age

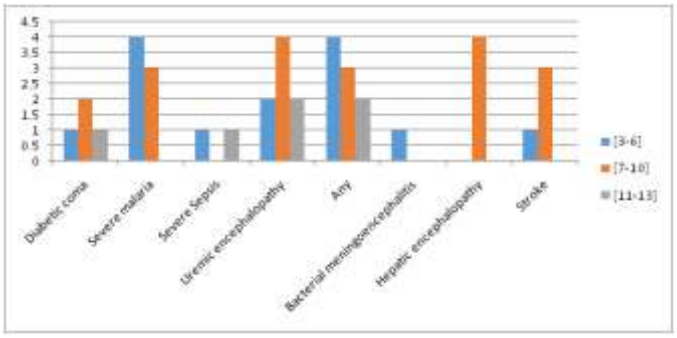

Figure 7: Distribution of patients by Glasgow score and etiology

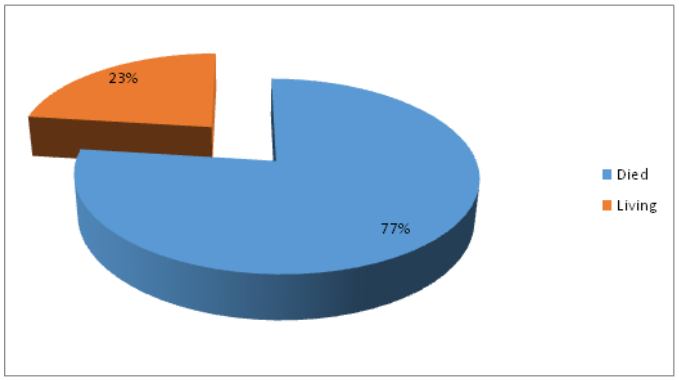

Figure 8: Distribution of patients according to evolution

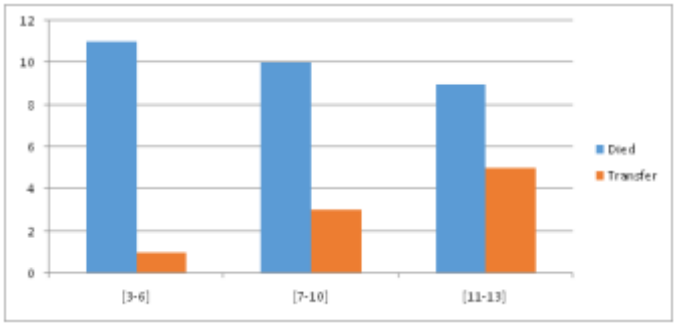

Figure 9: Distribution of patients by Glasgow score and evolution

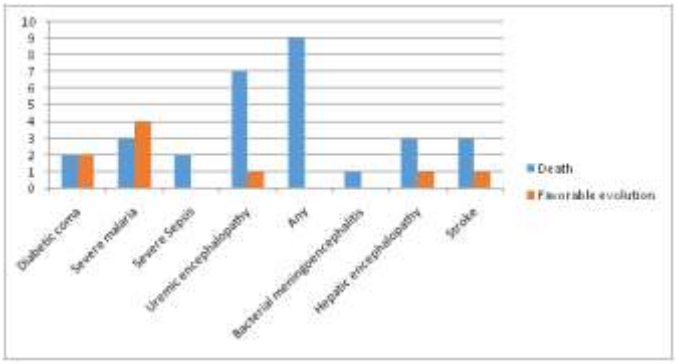

Figure 10: Distribution of patients according to evolution and etiology