

# Prognosis of the Patients in Resuscitation Field in Mali

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## Abstract

**Introduction:** The patients whose vital prognosis is immediately threatened by one or several serious organs failures and consecutive to various pathologies are admitted in resuscitations (IUC). The rates of morbi-mortality are raised in Africa. **Objective:** To study the prognostic factors. **Patient and Methods:** It was about a transverse survey from January 2015 to April 2016 in the unit of polyvalent resuscitation of the service of anesthesia resuscitation of the academic hospital center of Gabriel Toure. It included all patient admitted for medico-surgical pathologies of more than three hours of hospitalization. It was about a consecutive recruitment of case. The Chi<sup>2</sup> and Fisher tests were used for the comparison of our results with a p value = 0.05 considered as meaningful. The consent of the patients or parents was gotten. The survey didn't include a potentially dangerous act. **Results:** During the period, 624 patients have been collected of which: 50.4% were medical pathologies, 19.4% surgical pathologies and 30.2% of gynéco-obstetric pathologies. At least a complication had occurred in 11.2%. Mortality was of 27%. The sex-ratio was of 0.51. The middle age was of 31.88 ± 17, 2 years with extremes of 2 years and 80 years. The met complications were: the scab, the syndrome of acute respiratory distress (ARD), the urinary infection, the pneumopathie, the shock, thrust hypertensive, stops cardio circulatory with respectively 35.1%, 26.6%, 22.3%, 6.4% and 3.2%. The middle length of stays was of 4.83 ± 5.32 days with extremes of 1 day to 29 days. **Conclusion:** The complications under hospitalization in unit (IUC) of resuscitation in Mali are a major challenge in term of prevention and management. The potentially non serious pathologies

complicate themselves and compromise the vital prognosis.

## **Keywords**

Morbimortality, Resuscitation, Academic Hospitable Center, Mali

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## **1. Introduction**

The patients whose vital prognosis is immediately threatened by one or several serious organ failure and consecutive to various pathologies are admitted in resuscitations. This state makes that it is necessary to assure an increased surveillance of the patients and to have some prérequis to know the use of techniques and specific materials, the continuous surveillance and a qualified staff. The modes of admission are variable; they can be direct or by transfer. In Europe, the direct admission of the patients in resuscitation is spilled enough due to the regulation of the emergencies with a frequency of 30% [1] [2]. To the United States, the importance of the traumatic mortality justified a regional organization of the management of the injured based on the traumas center. The modes of admission of the patients in resuscitation influence on the prognosis of these. The system of the polyvalent resuscitation in the countries of limited resources demand more efficiency. In France the death rate of the patients admitted in resuscitation reaches 20% - 50% [3] [4]. In Africa in Burkina the global death rate was of 63.6% [5]. The death rates observed in Niger, Gabon and Morocco were respectively 28.34%, 27.8% and 30% [6]. A previous survey achieved in the service recovered a death rate of 42.5% [7]. The evaluation of the foreseeable evolution of the patients or even the degree of gravity is a practice in the sense of the quality of the care. So to improve the prognosis of our patients, we initiated this survey with as objective to determine the prognostic factors of the patients in resuscitation.

## **2. Patient and Methods**

It was about a prospective and transverse survey from January 2015 to April 2016 in the unit of polyvalent resuscitation of the service of anesthesia resuscitation of the academic hospitable center of Gabriel Toure. The population of survey was constituted of the set of the patients admitted in polyvalent resuscitation unit. Was included all patient admitted for médico-surgical pathologies of more than three hours of hospitalization. It was about a consecutive recruitment of case. The data were collected from the register of hospitalization of the service, from the files of the hospitalized, patients from the daily cards of prescription and surveillance and finally from the results of the para clinics exams achieved. A questionnaire has been assigned to all patients which permitted to collect the sociodemographic, clinical and para clinical data. All patients were examined systematically with a compilation of the different clinical parameters (general state conjunctive, the conscience, score of wakening of Albrètte, the tempera-

ture, the arterial pressure, the cardiac frequency and the respiratory frequency). The retained diagnoses were regrouped by organ. The Chi<sup>2</sup> and Fisher tests were used for the comparison of our results with the value of  $p = 0.05$  considered as meaningful. The consent of the patients or parents was gotten. The survey didn't include a potentially dangerous act.

### 3. Results

During the period, 624 patients have been collected of which: 50.4% of medical pathologies, 19.4% of surgical pathologies and 30.2% of gynéco-obstetric pathologies. At least a complication had occurred in 11.2%. Mortality was of 27%. The sex-ratio was of 0.51. The middle age was of  $31.88 \pm 17.2$  years with extremes of 2 years and 80 years. The intrahospital admissions dominated (91% of the cases). The three main motives of admission were the post-operative survey, the conscience alteration, and the eclampsia with respectively 25.6%, 13.3% and 10.7%. The patients didn't have any antecedent in 42.9% of the cases. The met complications were: the scabs, the syndrome of acute respiratory distress (SDRA), the urinary infection, the pneumopathie, the shock, thrust hypertensive, stop cardio circulatory with respectively 35.1%, 26.6%, 22.3%, 6.4% and 3.2%. The three fashions of exit were: the intra hospital transfert (71.8%), death (26.8%) and the exéat (1.4%). The middle length of stays was of  $4.83 \pm 5.32$  days with extremes of 1 day to 29 days.

Patients of 50 years and more died more that the other age groups with 56.5% of death rate ( $P = 0.0001$ ). Patients of masculine sex died more that women (41.9% against 19.3%  $P = 0.0001$ ). Mortality was more important among the patients who had medical antecedents with ( $P = 0.001$ ). Patients admit with a score of Glasgow? = 7 died more either 56.8% ( $P = 0.0001$ ). Complications were noted more frequently in men (18.1% against 7.7%  $P = 0.0001$ ). The complications were observed to all age groups: less than 20 years (6.9%), 20 to 40 years (14.7%), 40 to 60 years (6.5%), 60 years and more (17.4%) ( $P = 0.0001$ ). The intervening of the complications varied with the length of stay with 5.3% to 4 days of stay length, 9.5% for a length between 4 and 7 days and 35.7% to more of 7 days of stay length. The complications had occurred in 50% of the cases of direct admission, 6.4% in case of transfer and 11.2% in case of mutation ( $P = 0.024$ ). The exits by mutation according to the age group were from 87.9% to less of 20 years, 74.8% between 20 and 40 years, 58.2% between 40 and 60 years and 43.5% to more of 60 years ( $P = 0.0001$ ). None of the patients of GLASGOW score of lower to 7 didn't leave by transfer against 3.1% of the patients of GLASGOW score superior to 8 ( $P = 0.0001$ ). Femal patients stayed less than 4 days (60.1% of the cases against 41.9%) ( $P = 0.0001$ ). The fashions of exit according to the motive of admission, of the diagnosis are mentioned in the **Table 1** and **Table 2**, and the length of stay according to the motive of admission **Table 3**.

### 4. Discussion

The environment in which we exercise is characterized by a weak medicalization

**Table 1.** Discharge mode and admittance reason.

Reason of admittance	Discharge mode			Total (%)	p
	Mutation (%)	Discharge (%)	Death (%)		
Taken in post-operative charge	135 (84.4)	0 (0)	25 (15.6)	160	0.0001
Change of conscience	43 (51.8)	6 (7.2)	34 (41.0)	83	0.0001
Eclampsia	83 (86.5)	0 (0)	13 (13.5)	67	0.002
Malaria	31 (68.9)	3 (6.7)	11 (24.4)	45	0.044
Patient shock state	37 (88.1)	0 (0)	5 (11.9)	42	0.052
Thermal burn	12 (34.3)	0 (0)	23 (65.7)	35	0.0001
Cranial traumatism	18 (60)	0 (0)	12 (40)	30	0.238
Diabetic coma	17 (58.6)	0 (0)	12 (41.4)	29	0.173
Cerebral vascular accident	11 (50)	0 (0)	11 (50)	22	0.040
Poly traumatism	10 (76.9)	0 (0)	3 (23.1)	13	1
Sepsis	8 (100)	0 (0)	0 (0)	8	0.213
Other	48 (71.6)	0 (0)	19 (28.4)	90	0.786
<b>Total</b>	<b>358 (57.4)</b>	<b>168 (26.9)</b>	<b>98 (15.7)</b>	<b>(100)</b>	

**Table 2.** Diagnosis and mode of discharge.

Diagnosis	Discharge mode			Total (%)	P
	Mutation (%)	Discharge (%)	Death (%)		
Cardio-vascular pathology	66 (7.0)	0 (0)	22 (25)	88	0.583
Pulmonary broncho pathology	45 (83.5)	0 (0)	9 (16.7)	54	0.135
Neurological pathology	21 (52.2)	0 (0)	19 (47.5)	40	0.013
Traumatism pathology	42 (43.8)	0 (0)	54 (56.3)	96	0.0001
Métabolism pathology	4 (18.2)	3 (13.6)	15 (68.2)	22	0.0001
Obstetric gynecology pathology	219 (84.2)	0 (0)	41 (15.8)	260	0.0001
Infectious pathology	45 (44.6)	6 (5.9)	50 (49.5)	101	0.0001
Chirurgical pathology	157 (93.5)	0 (0)	11 (6.5)	168	0.0001
<b>Total</b>	<b>358 (57.4)</b>	<b>168 (26.9)</b>	<b>98 (15.7)</b>	<b>624 (100)</b>	

**Table 3.** Duration of hospitalization and admittance reason.

Reason of hospital admission	Duration of hospitalization			Total (%)	P
	Less than 4 days (%)	[4 à 7 days (%)	7 days and more (%)		
Care post-operative	105 (65.6)	41 (25.6)	14 (8.8)	160	0.009
Conscience modification	42 (50.6)	35 (42.2)	6 (7.2)	83	0.001
Eclampsia	63 (65.6)	26 (27.1)	7 (7.3)	67	0.270
Malaria	28 (62.2)	6 (13.3)	11 (24.4)	45	0.053
State of shock	26 (61.9)	13 (31)	3 (7.1)	42	0.282
Thermal burn	22 (62.9)	8 (22.9)	5 (14.3)	35	0.791
Cranial traumatism	4 (13.3)	2 (6.7)	24 (80)	30	0.0001
Diabetic coma	15 (51.7)	2 (6.9)	12 (4.6)	29	0.0001
Cerebral vascular accident	3 (13.6)	7 (31.8)	12 (54.5)	22	0.0001
Poly traumatism	1 (7.7)	12 (92.3)	0	13	0.0001
Sepsis	5 (62.5)	0	3	8	0.097
Other	30 (44.8)	25 (37.3)	12 (17.9)	67	0.070
<b>Total</b>	<b>358 (57.4)</b>	<b>168 (26.9)</b>	<b>98 (15.7)</b>	<b>(100)</b>	

of the population, the limitation of the therapeutic means and the very precarious socio-economic level. Mortality is of 27% against 42.9% in the survey of Samaké B.M. [7]. This difference may be explained by the predominance of the young people in our survey that is very often admitted for the acute pathologies and without factor of comorbidity. The patients are younger in our set. On the other hand in the set of Samaké B.M. [7] the patients besides 60 years predominated. This difference results in one way from the frequency of the admissions for frequent obstetric pathologies among the young people and admissions for accident of the public way where the young people are implied on the other way. The femal predominance is noted in the sets of Ouédraogo and Colls [5] and of Samaké B. [7]. the fashion of admission is dominated by the mutations. This mode of entry is compatible with the polyvalent character of the resuscitation that receives the patients of all services of the academic hospitable center. The postoperative survey and the éclampsia are of the most frequent motives of admission. This high number of patients after interventions is largely due to the lack postinterventionnel room surveillance. The unit of resuscitation that acted as setting of the survey has a most elevated level of the sanitary pyramid of Mali that puts us in position to receive the complications related to pregnancy notably the very frequent eclampsia again in Africa especially in Mali. The intervening of the complications during hospitalization is one of the elements of appreciation of the quality of the care. They are dominated by the complications of decubitus and the infections. This result denotes the insufficiency of the technical materials

notably the anti-scab mattresses and the absence of a strategy of prevention of the infections related to the care. The middle length of stay was of  $4.83 \pm 5, 32$  days. It is comparable to those noted in the literature with middle lengths of variable stay between 4 and 10 days [8] [9] [10] [11]. This relatively short length is due to the predominance of the admission motives as the post-operative surveillances and the eclampsia. In these two cases the stays are relatively short and a less important mortality. This is as much true as some studies found that the patients who have an elevated initial gravity have a longer stay length [12]. The length of the stay is often used like alternative to measure the morbidity, but it is always tributary of the policies concerning exit, therapeutic habits and management of the beds [13].

The evolution of the patients correlated to the following diagnoses: broncho-pulmonary, neurological, traumatic, metabolic, gynéco-obstetric, infectious, and surgical with  $p < 0.05$ . The patients survive a lot of majoritary when it is about gynéco-obstetric and surgical pathologies. On the other hand they die more when it is about infectious, metabolic and traumatic pathology from where the necessity to reinforce the technical material to face these pathologies. This evolution is also correlated to the complications with 100% of death for complications of pneumopathie and shock with  $p < 0.05$ . Hajar T [14] found 60% of complication of pneumopathie. The complications to type of scab, urinary infection and pneumopathies are related to the sex with a statistically meaningful test. The urinary infections and the pneumopathies occur to 100% at the men and the scabs are observed majoritary at the men. The anatomical particularities make that the men are exposed to the urinary infections more. Also considering the short stay length at the women in reason often of the motives of amission, they are less exposed. The shock occurred besides to 100% among the subjects of 60 years. It could be explained by the existence of the factors of comorbidity to these ages that are not often identified before because of the under medicalization of the population. The intervening of the scabs is correlated to the fashion of entry with a frequency of 90.9% in case of admission by transfer and 9.1% in case of direct admission against 0% in case of admission by mutation. The transferred patients very often stayed in other structures without the adequate means. They arrive with a beginning of scab for most, what puts the problematic of the quality of the care upstream of the structures of last reference. The modes of exit were related to the motives of admission. It is about the admission motives as post-operative surveillance, the conscience alteration, the eclampsia, the malaria, the thermal burn and cerebral vascular accident. Except in burn patient where the death rate is more high, in all others cases the patients go out majoritary by mutation. According to the diagnosis the modes of exit are different with  $P < 0.05$ .

## 5. Conclusion

The intervening of the complications under hospitalization in unit of resuscita-

tion in Mali is a major challenge in term of prevention and management. The pathologies treated that are not potentially serious complicate themselves and compromise the vital prognosis. We recommend an enhancement of technical platform a good strategy of prevention and treatment of the infections related to the care.

### Conflicts of Interest

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

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