Burns at the Nouakchott Trauma and Burns Centre (Mauritania) Epidemiological, Clinical, Etiological and Therapeutic Profiles Based on 105 cases

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ABSTRACT

INTRODUCTION: *Burns are a public health problem. They are responsible for a significant number of days off work and are a source of major functional and cosmetic disability.*
Aims: *the aims of this work are*
- Study the different epidemiological, clinical and a etiological characteristics
- Evaluate the care of burns patients at the CTOGB
- Propose care protocols adapted to our conditions of practice. - Make recommendations for the care of burn victims in Mauritania.
Materials and methods*: This is a retrospective descriptive and analytical study of 105 patients hospitalized with burns collected at the CTOGB during the period from 1 January 2017 to 31 December 2017.*
Results: *The mean age of our patients was 19.4 years, with extremes of 1 and 70 years. Women were the most affected 68.6% of cases, men represented 31.4% of cases, The sex ratio was 0.46. The most frequent circumstance of occurrence was a domestic accident (93.3%). Thermal burns were the most frequent cause in 97.1% of cases. The admission time was less than 24 hours in most cases. The mean DBS was 42%. The mean length of stay was 11 days, with extremes ranging from 2 to 90 days. The outcome was favourable in 64.6% of patients, with 32.4% dying. Conclusion: Burns are a very frequent and worrying traumatic pathology. The main mechanism is thermal burns, most often caused by domestic accidents.*

KEYWORDS: *Burns-Epidemiology-Mechanism-Management*

I. INTRODUCTION

A burn is defined as more or less complete acute destruction of the skin surface by a thermal, chemical or electrical source, etc. It is said to be serious when its extent, depth, topography, circumstances of occurrence, age of onset and damaging agent are life-threatening [48]. It is a very common traumatic pathology and a cause for great concern, even in developed countries with adequate resources for its management.

In developing countries, the morbidity and mortality associated with this trauma make it a major public health problem. Non-fatal burns are one of the main causes of morbidity, including prolonged hospitalisation, disfigurement and disability, often leading to ostracism and exclusion.

They are responsible for a significant number of days off work and are a source of major functional and aesthetic disability.
They require rapid care, the principles of which must be familiar to those involved in emergency care.

Multidisciplinary care in a specialised centre determines the medium- and long-term outcome. It has been shown that delayed or inappropriate initial medical treatment is significantly correlated with increased secondary mortality [52].
Burns are the condition that has benefited most from advances in resuscitation, surgery and recovery techniques.

The frequency and severity vary from country to country and according to socio-economic level, but it is more dramatic in developing countries.

Every year, 2 million people in the USA suffer burns, including 500,000 are serious burns with an estimated direct mortality of 1000/year [39]. In France, burns affect 300,000 people every year. Of these, 15,000 have to be hospitalised and 3,000 require treatment in a burns centre [63].
In sub-Saharan Africa, the incidence of burns is one of the highest in the world, at 245 cases per 100,000 people, i.e. 3 times the global average [8].

Mortality due to burns is also one of the highest in underdeveloped countries, at around 10% in East Africa for example [8].
In Mauritania, there is still no data on burns. It is in this context, and to contribute to the improvement of burns care that we conducted this work, through a retrospective study of 105 patients hospitalized at the orthopedic trauma and burns centre (CTOGB) in Nouakchott over

a period of 12 months (2017) from 1er January to 31 December 2017 This study aims:

- Study the different epidemiological, clinical and aetiological characteristics of burns.
- To evaluate the activity of burns care at the CTOGB.
- Propose care protocols adapted to our practice conditions.
- To make recommendations for the management of burn victims in Mauritania.

II. MATERIALS AND METHODS

This is a retrospective descriptive and analytical study of 105 patients hospitalised with collapsed burns at the Centre de Traumatologie Orthopédie et Grands Brûlés (CTOGB) of Nouakchott (Mauritania), during the period from 1er January 2017 to 31 December 2017(12 months). All patients hospitalised in the burn unit of the Centre de Traumatologie Orthopédie et Grands Brûlés (CTOGB) were included.
Epidemiological, clinical, paraclinical, therapeutic and evolutionary parameters were extracted from the medical files of the selected patients and listed in an evaluation form for each patient.

The patient records were filled in and computerised using IBM SPSS (20.0) software. Statistical analysis was carried out using IBM SPSS statistical processing software running on Windows 8.

III. RESULTS

During the period of our study, we recorded 420 consultations at the Centre de Traumatologie- Orthopédie et des Grands Brûlés (CTOGB) for burns. One hundred and twenty patients with burns were admitted to hospital, 105 of whom were included in our study. The average age of our patients was 19.4 years, with extremes of 1 and 70 years, and the age group most affected was between 1 and 20 years. There was a clear female predominance, with 72 women (68.6%) and 33 men (31.4%), giving a sex ratio of 0.46.

Among the circumstances in which burns occurred, domestic accidents were the most frequent (93.3%).
Thermal burns were the most frequent mechanism, occurring in 102 patients (97.1%). They were caused either by a hot liquid or flames (fire, explosion of a gas bottle, catching fire/stove, immolation). Toxic epidermal necrosis following the use of medication was found

in 2 patients (1.9%). Electrical burns were found in 1 patient (1%). These were true electrifications.
Most patients had an admission time of less than 24 hours, although some were admitted more than 2 weeks later.
The socio-economic level was low in the majority of our patients. All patients were initially transported to a care facility by non-medical means.
The mean SCB was 42% with extremes of 15% and 95%. The depth of the burn was specified in all patients.
For vital distress and injuries associated with admission, we noted the following in our patients

Eight cases of hypovolaemic shock. Five cases of respiratory distress.

Three cases of neurological distress with Glasgow ≤ 13.

• Inhalation injuries were suspected whenever the accident occurred in an enclosed environment. Due to the unavailability of bronchial fibroscopy, only 3 cases could be suspected clinically due to the presence of secretions (soot) and radiological orientations.

Biological and radiological data revealed :

- Six cases of functional acute renal failure (ARF) with blood creatinine greater than 13

  mg/L with 4 cases of severe or life-threatening hyperkalaemia.

- 8 patients with hypovolaemic onset and haemoconcentration.
- Hyponatremia in 7 patients and hypernatremia in 5 others.
- Anaemia in 12 patients on admission.
- Hyperglycaemic diabetic imbalance in two type 2 diabetics.
- Chest X-rays were routinely performed in our burned patients admitted to hospital. It

  was used to confirm 3 cases of inhalation pneumonitis on admission or images of bronchopneumonia in patients with inhalation lesions or in patients referred for secondary management.

  Crystalloid or colloid filling was initiated in all patients presenting haemodynamic instability (60 cases), i.e. 57%, according to the Parkland rule (4 ml.kg-1/ DBS/24 hours).
  Systemic analgesia was introduced in all patients, with a combination of tier 1 and tier 2 analgesics being the most commonly used.

  All patients received systemic antibiotic therapy, with amoxicillin and clavilanic acid being the most frequently used.
  Transfusion by packed red blood cells was carried out in 6 patients (5.71%), the quantity transfused varied between 1 and 4 packed red blood cells with an average of 1.83 units/patient transfused.

  For adjuvant treatment, the

- Tetanus vaccination used in the majority of cases.
- Prevention of thromboembolic disease by LMWH used in the majority of cases.

  At local level

- The conservative attitude of directed healing (detersion, budding, epidermisation) was followed during dressings.
- The rhythm was a bandage every two days
- Dressings made in the majority of cases under sedation with ketamine combined with diazepam and atropine

Physiotherapy: in general, physiotherapy is carried out during dressings or in the patient's bed, and walking is recommended whenever possible.

Surgical procedures other than dressings included :

- 12 Cutaneous autografts
- 02 musculocutaneous flaps

The outcome was favourable in 71 patients with burns, i.e. 67.6% (survival) discharged home:

- ARDS was noted in 2 patients who presented with ARDS.
- Intra-abdominal hypertension syndrome was noted in 2 patients.

As for late complications, infectious complications were noted, as several bacteriological samples were taken in the presence of fever and/or local or general signs of infection. Progression to septicaemia and septic shock with a fatal outcome (refractory septic shock) was observed in 14.28% of cases. Multi-resistant Klebsiella Pneumoniae was isolated from a 6-year-old girl. Although the evolution of her burn was favourable, septic shock was fatal. Infection is currently the main cause of death in burns wards, along with multivisceral failure. It can be local or general, with the lung being one of the preferred targets. It is difficult to diagnose, particularly in children, in whom fever is common due to SIRS. Other late complications **include**

- 11 cases of pneumopathy
- 7 cases of late ARDS

- 2 cases of depressive syndrome
- 1 case of cardiac arrest during GA dressings
- 1 case of blindness (child, treated and cured)
- Pathological healing → Aesthetic and functional sequelae.

Some patients had functional or cosmetic sequelae in the form of scarring of the limbs or the head, especially on the neck. Surgical procedures (release of scar tissue or autologous skin grafts) were performed on 12 of our patients in scheduled surgery by CTOGB orthopaedic surgeons, most of whom underwent functional rehabilitation.

In our study, 34 patients died, giving a mortality rate of 32.4%. Of these patients who died

- 21 are women and 13 men.
- Children under 15 accounted for 64% of deaths.
- SCB was

ü Greater than 60% in 11 patients (32.35%),
ü Between 30%-60% in18 patients (52.94%), and
ü Less than 30% in 5 patients (14.71%).

- One (1) patient hospitalised for the management of toxic epidermal necrosis died after 12 days in hospital.

The average length of stay for our patients was 11 days, with extremes of 2 and 90 days.

DISCUSSION

Our study showed that the incidence of burns was 28.57%. However, this rate does not reflect reality. In fact, this incidence is generally difficult to assess in our context, due to the scarcity of data, which is often imprecise. This is due to the large number of burns that are neglected or treated at home, the use of traditional practices, the death of some victims at the scene of the accident and the absence of statistical registers of burn victims in other hospitals. Our results are similar to those found in Morocco [22] and Nigeria [49].

The high frequency of burns among children and adolescents (the age group most affected was between 1 and 20 years) could be explained by the hyperactivity and risk-averse behaviour of this population. This predominance of young people was also found by IBNOUZAHIR in Marrakech [22], where the young, active population was the most affected and children the most exposed. This frequency is also found in France, where 30% of the recruitment in burn centres is made up of children, especially aged 01 to 04 years [40].

There was a clear predominance of women, across all age groups (68.6% women and 31.4% men), in our study population. This could be explained by the high frequency (93.3%) of domestic accidents, which most often affected women.
Domestic accidents were the main cause of burns, with a frequency of 93.3%. This incidence was confirmed by the results found in Nigeria [49]. This rate is also high, with 80% of domestic accidents according to OLADELE [49].

Thermal burns affected 102 patients (97.1%), and were caused either by a hot liquid or by flames (fire, explosion of a gas bottle, stove catching fire, immolation).
The incidence of these thermal burns in our context could be explained by the low socio- economic level. The flame remains the main means of cooking, with the use of petrol or petrol for wood fires, abusive handling without safety and the widespread use of butane gas. Mobile fires at ground level are a danger to children. In addition, the local way in which women dress, wearing loose-fitting clothes often made of polyester, encourages the occurrence of extensive and deep burns. There is also the frequent use of candles, even in urban areas, due to power cuts. Accidents are often collective, involving members of the same family.

Toxic epidermal necrolysis (TEN) following the administration of drugs ranked 3ème in our study, affecting 2 patients (1.9%). The SCB was greater than 30% in the 2 patients. One was a 13-year-old girl who was hospitalised for 12 days after taking anti-epileptic drugs (gardenal) and then discharged home after an improvement in her state of health. The other was a 19- year-old boy whose NET was caused by drugs of an unknown nature; the patient died after 8

days in hospital. Severe toxic epidermal necrolysis is similar to extensive burns; patients are seriously ill, may not be able to eat or open their eyes, and suffer massive fluid and electrolyte losses. They are at high risk of infection, multiple organ failure and death. With early treatment, the survival rate is close to 90%. Treatment has the best chance of success when toxic epidermal necrolysis is recognised early and treated in a hospital dermatology unit or intensive care unit. Treatment in a burns unit may be necessary in severe cases. The patient is isolated to minimise exposure to infection and is given fluid, blood products or nutritional supplements as required.

Skin care includes rapid treatment of bacterial superinfections and wound care, as in the case of severe burns. Systemic antibiotic prophylaxis is controversial and often avoided. Electrical burns affected one patient (1%) in our study. These have an incidence of 2.8 to 4.6% in south-eastern Nigeria [48%]. According to IBNOUZAHIR, electrical burns accounted for 8% and were secondary either to true electrotrauma with passage of current or to a thermal flash. They were most often occupational accidents for young adults, and domestic accidents for young children [22%]. The quality of electrical installations in the home and on the public network could explain the frequency of electrical burns, but also the handling of electrical circuits without any safety rules, both in the home and in the workplace (in the case of accidents at work).

The vast majority of patients were admitted within 24 hours of their burns. Burn victims arrived relatively late at the emergency department and by non-medical transport, which did not save time in terms of initial resuscitation.

The delay in referral to hospital could be explained by the remoteness of the victims or by the inability of the main referents to assess the severity of the burns, whether in the case of burns with primary care in non-specialised structures, at home or at the traditional practitioner's. In these circumstances, the care is often of poor quality, traumatic and a source of complications (infection++). The absence of pre-hospital care was almost total in our series, which had an impact on the outcome. The time taken to consult a doctor in the event of a serious burn is important, particularly for resuscitation during the first 48 hours, which must be carried out early [12].

A retrospective study of 133 children with more than 50% of their body surface area affected showed a correlation between fluid and electrolyte resuscitation started within the first two hours post-trauma, and the secondary incidence of multi-visceral failure syndrome and mortality [17].

In our study, all patients were initially taken to a health facility by non-medical transport, most of which was provided by private cars (family cars, volunteer cars, taxis, etc.). This result proves the absence of pre-hospital medicine in Mauritania.
Wallace's rule of 9, which is the most widely used in the emergency context (especially pre- hospital) to assess the extent of burns [52]. This is the main assessment method used in our patients, although the Lund and Browder tables would have provided a more accurate estimate.

The SCB is the main parameter determining the severity of the general repercussions of the burn through hydro-electrolytic and thermal losses.
Analysis of our results showed that a CBS of 40% or more was a poor prognostic factor.
In the IBNOUZAHIR series in Marrakech, the average burnt body surface was 28% [22].

Many studies show that clinicians are interested in 2^{éme} and 3^{éme} degree lesions to the

detriment of 1er degree lesions. Painful first-degree burns are difficult to define, especially on black skin, healing is rapid and there is virtually no risk of infection. It is essential to assess the degree of deep lesion damage, as this determines the prognosis and local treatment of the burn. It should be noted that a first-degree cutaneous burn can be serious, as it may be associated with factors that can make a burn serious: associated lesions or intoxication. This is the most difficult element to assess. It must be considered over time, especially as the

appearance is modified by the topicals used. The prognostic importance of depth is crucial. Early distinction between these different stages of burns is often difficult, and of little interest in terms of initial resuscitation [36]. However, it should be remembered that cutaneous burns are dynamic lesions.

There were eight cases of hypovolaemic shock in our series. These cases often had an unfavourable outcome, which could be linked both to the burn itself and to the consequences of the state of shock. Vascular filling in burn patients requires large volumes of fluids. The aim is to maintain an effective blood volume. This filling was regulated according to the time of admission, haemodynamics, respiratory burns or severe rhabdomyolysis. In our series, the first 24 hours of volume supplementation was based on the Parkland Hospital formula, established by Baxter. In our study, crystalloid or colloid filling was initiated in all patients with haemodynamic instability (60 cases), i.e. 57%, according to the Parkland rule (4 ml.kg-1/ SCB / 24 hours). Rather than an arbitrary absolute value, this formula is a guide: the flow
rate is then adapted to a diuresis that should be maintained between 0.5 and 1 ml/kg/h [36]. Experimental data show that the perfusion rate should be high during the first hour before decreasing exponentially [42,59]. If the percentage of DBS cannot be accurately estimated, 20ml/kg during the first hour is recommended [12]. The introduction of inotropes may be beneficial but should be cautious.
Some authors insist that the choice of formulae is not the most important factor, but that the effectiveness of filling in burn patients depends on: the speed of haemodynamic recovery [18, 31, 42].

In practice, the current approach is to carry out this filling according to the clinical and biological evolution, using haemodynamic data [37]. The therapeutic objectives of this filling were
- MAP ≥ 90 mmHg (adult)

- a heart rate ≤ 100/min
- diuresis ≥ 1 ml/Kg/ h

Underfilling leads to organ failure and, in particular, renal failure, which increases mortality. Appropriate and timely treatment of hypovolaemic shock prevents hypoperfusion and protects renal function. However, the massive presence of necrotic tissue due to deep 2nd degree or 3rd degree burns leads to the production of myoglobin, which causes direct renal damage. Replenishment and alkalinisation of the urine and control of hyperkalaemia are an absolute priority.

6 patients (5.71%) were transfused with packed red blood cells. The department's attitude is to avoid blood transfusions as much as possible, in order to minimise the risks inherent in this procedure. This partly justifies the low rate of patients transfused. The mechanism of treatment of anaemia in burn patients merits a prospective study to provide a better framework for transfusion in this context.

[1] This Systemic analgesia was introduced in all our patients, with a combination of tier 1 and tier 2 analgesics being the most commonly used. Morphine remains the reference opioid [57]. It is also the most cost-effective analgesic. Ketamine is widely used as an analgesic in most of our patients, but has never been the subject of an evaluation study. No systematic antibiotic therapy was prescribed in the first few hours in any of our patients. And it was often following a probable clinical suspicion of infection that our patients received systemic antibiotic therapy, with the amoxicillin-clavilanic acid combination being the most frequent. In addition, our care habits help to prevent local infection: washing burns and flattening phlyctenes with an antiseptic soap, then rinsing with sterile water in the case of deep burns, shaving the hair on and around the burn, and dressing with a topical that prevents infection, such as silver sulphadiazine (Flammazine®). In the absence of bacteriological information, early surgery is covered by probabilistic antibiotic prophylaxis (aminoglycoside) [32], which is stopped the following day. Burn patients frequently present with anaemia on admission or during hospitalisation, and it is estimated that 11% of burn patients will be transfused. anaemia has a dual origin: surgical bleeding and blood spoliation in intensive care, in a context of myelosuppression. (Http://www.medbc.com/annals/) Prevention of thrombotic risk had been the order of the day. Prolonged bed rest and the inflammatory syndrome represent a high thromboembolic risk, which was usually managed by day 7éme with heparino-prophylaxis (LMWH/Enoxaparin SC). This prevention was continued at reduced doses during surgery, taking into account the risk of postoperative haemorrhage. All our patients are routinely vaccinated against tetanus. Tetanus prophylaxis is all too often forgotten; vaccination and/or serotherapy, depending on the vaccination status, should be carried out systematically as soon as the patient is admitted and recorded in the patient record [63]. Nutrition in burn patients is an important part of treatment, to combat depletion of the body's energy reserves, major malnutrition and infection [31]. It was introduced very early in our patients. Parenteral nutrition is not widely available, is expensive and requires a central venous line, which is a source of complications. The use of enteral nutrition comes up against a number of practical problems. There are many practical aspects to the use of enteral nutrition. Digestive ileus is frequent, of multiple origins (low flow, morphine), daily dressings under anaesthesia impose fasting with delayed resumption of feeding. This enteral route was preferred in our series with an intake of approximately 1500 to 3000 Kcal/day.

Oxygen therapy was routinely given to all our inpatients. Otorotracheal intubation with a view to mechanical ventilation was a very rare procedure, given the absence of the necessary and essential equipment in our facility. Preventive" intubation of a patient with severe facial burns, before the onset of oedema, is therefore permissible; it is never an easy decision, and we more often regret not having intubated the patient than having done so excessively. The trachea should be kept intubated for 3 to 5 days until the oedema subsides [36]. According to some authors, intubation is recommended for [57] :

Respiratory and/or neurological distress.

A proven respiratory risk: (symptomatic respiratory burns; facial and/or cervical burns; PHILIPS triad)Deep burn ≥ 50% SCB +/- intense SIRS Early ARDS.

Anaesthesia: the dressings performed several times a week in the dressing room are the source of intense painful stimuli, usually requiring general anaesthesia. The usual form of anaesthesia was a superficial anaesthetic with spontaneous respiration based on ketamine combined with diazepam and atropine.

The department's protocol, which was applied, is the conservative and directed strategy also known as "directed healing" [55]. Washing with antiseptic soap, flattening of phlyctenes, shaving of hair, rinsing with water. For the first 10 days, daily dressings lasting 30 minutes to an hour are carried out under general anaesthetic in the patient's bed or in the bathtub in the dressing room reserved for this purpose. The administration of fluids, resuscitation drugs and sedation is continued. The main local topical used is sulphadiazine under an occlusive dressing. After the 10th day, the wound was washed with soap and povidone-iodine gel, and a JELLONET dressing was applied every 2 to 3

days. Some patients underwent surgical procedures, including 12 skin autografts performed between Day 15 and Day 41, and 02 musculocutaneous flaps.
The advantage of surgery is that it reduces SIRS, which makes resuscitation easier, reduces the risk of infection and increases skin coverage. In our context, the autograft is sometimes difficult to protect. The "sandwich technique" using homograft (cadaver skin) would provide effective protection, but entails a significant risk of viral transmission. Furthermore, the synthetic dermal substitutes (Biobrane®, Intégra®, etc.) and skin allografts used in developed countries are too expensive. The only solution is to space out the grafts, giving
the donor areas the 8 to 10 days needed for the epidermis to regrow. The limit lies in the permanent risk of infection in ungrafted areas and general immunodepression. Finally, late surgery to treat the after-effects - removal of bridges, excision of keloids, reconstruction - is time-consuming and often disappointing in terms of social reintegration. It is therefore realistic to think that early surgical efforts are the most profitable, but should concentrate on deep wounds located in functional areas. The outcome was favourable in 71 patients (67.6%), who were discharged home, with an average length of stay of 10.9 days. A hospital stay of more than 7 days was a poor prognostic factor. Infection is the major risk in uncovered deep burns after 4e days in hospital [9]. Infection remainsthe1ère cause of death.

It remains a factor with a poor prognosis,as confirmed by our series where the presence of an infection could be decisive in the vital prognosis. However, in the case of severe burns, the best means of combating infection remains nutrition and early surgery; and whatever its effectiveness, antibiotics can only be a support [7].
In our study, 34 patients died, corresponding to a mortality rate of 32.4%. This mortality rate could be related to the respiratory distress that was very often found. This was related either to the circumstances of the accident or to the delay in providing care. Inhalation of toxic smoke, which causes pulmonary oedema, is correlated with high mortality, even with early resuscitation [50]. Respiratory damage may be the first stage of a multi-visceral failure syndrome of non-infectious origin [17] or form part of severe sepsis of infectious origin, the mortality of which is strongly correlated with the number of organ dysfunctions [36]. Delayed management of almost constant hypovolaemia and/or rhabdomyolysis may be responsible for renal failure, which is a negative factor, increasing mortality by 40% or more in some studies [30].

CONCLUSION

Burns are attacks on the skin's surface. Burns are said to be serious when their prognosis is life-threatening and/or functional. They are a real public health problem because of their high socio-economic cost, and very often reflect social insecurity.
The most common scenario is for the burn patient to be treated in a non-specialist facility. The difficulty of multidisciplinary management reflects the low level of health care in some countries. It is cumbersome and expensive because it combines intensive care and surgery. They are an accidental pathology par excellence, most often avoidable through prevention. The after-effects are sometimes dramatic, and can only be reduced by early treatment in a specialised centre, followed by further treatment in a rehabilitation centre. The lack of regulation and medicalisation of emergency services, combined with the limited availability of intensive care for burn victims, explain the high morbidity and mortality associated with burns in Mauritania. The after-effects are sometimes dramatic, and the need for early surgery for serious burn victims and functional rehabilitation means that decision-makers must be made aware of the urgent need to set up a burns treatment centre in Mauritania.

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Table I: Distribution according to circumstances of occurrence

Circumstances of occurrence	Workforce	Percentage
AVP	**1**	**1%**
Domestic accident (AD)	**98**	**93,30%**
Accident at work (AT)	**1**	**1%**
Assault	**3**	**2,80%**
Drug intake (pm)	**2**	**1,90%**

Table II: Numbers and percentages by CBS

SCB	Workforce	Percentage
SCB<30	18	17,14%
30%<SCB<60%	72	86,57%
SCB>60%	15	14,29%
Total	105	100%

Table III: Numbers and percentages according to Depth

Depth	Workforce	Percentage
1st degree	9	8,60%
2nd degree superficial	48	45,70%

2nd degree deep	35	33,30%
3rd degree	13	12,40%
Total	105	100%

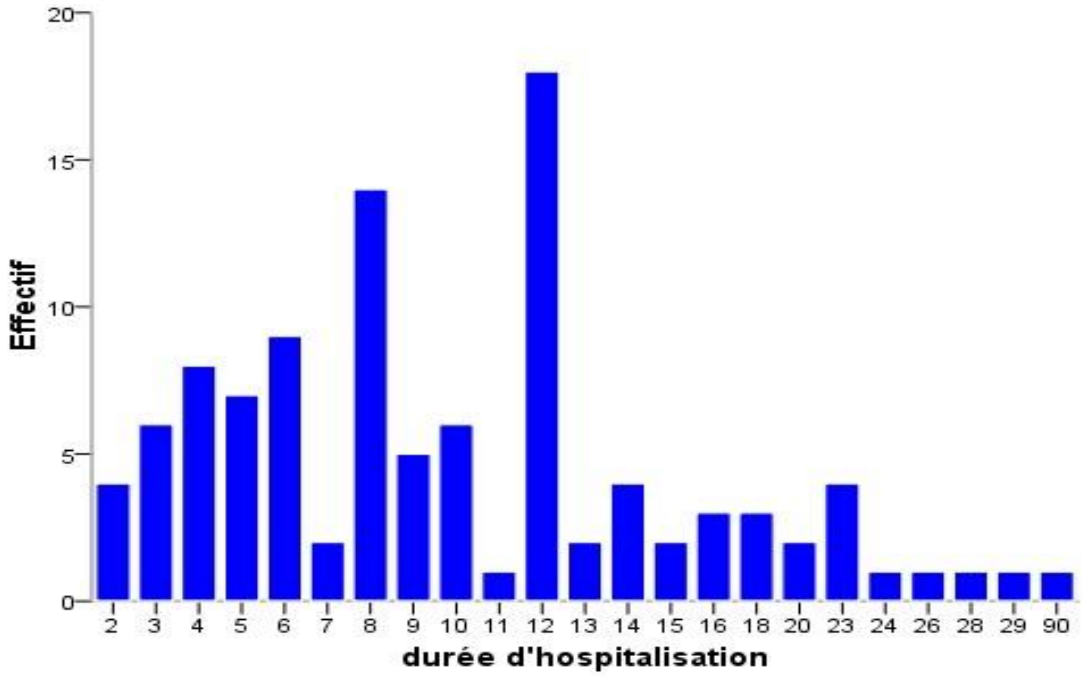

Figure 1 : **Breakdown by length of stay in hospital**