

# Acute Fevers in the Medical Unit of the Medical-Surgical Emergency Department of the Donka National Hospital

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## Abstract

**Introduction:** Fever is a high core temperature  $\geq 37.5^{\circ}\text{C}$  in the morning and  $37.8^{\circ}\text{C}$  in the evening. It is acute when it evolves from 0 to 20 days. Very common in clinical practice, the etiological diagnosis, particularly in developing and tropical countries, is often a challenge for clinicians due to their diversity and the limited availability of diagnostic tools. There is a wide spectrum of etiological diagnoses including infectious causes and non-infectious causes. The aim of this study was to investigate the etiology of fevers acute at the medical unit in the medico-surgical emergency department of the Donka National Hospital. **Methods:** This was a descriptive cross-sectional study lasting 03 months (January 01, 2022 to March 31, 2022). We included in this study all patients seen in the medical unit, whose age  $\geq 18$  years, without distinction of sex, from any origin, with an axillary temperature  $\geq 37.5^{\circ}\text{C}$  in the morning and  $37.8^{\circ}\text{C}$  in the evening, evolving from 0 to 20 days, hospitalized or followed on an outpatient basis, and having given verbal consent. **Results:** Of a total of 1087 patients seen, 466 had an acute fever. The mean age was  $40.04 \pm 18.91$  years (18 and 96 years). The female sex (58.15%) was predominant with a sex ratio of 0.72. Malaria (50.86%) was the main diagnosis. The treatment consisted of compressed paracetamol (59.01%), arthemether + lumefantrine (50.85%). **Conclusion:** The incidence of acute fevers is high in the medical unit of the medico-surgical emergency department of the Donka National Hospital. Malaria was the main pathology. Treatment was etiological and symptomatic. This high incidence could be explained by the fact that Guinea is an endemic malaria zone. A study taking into account other etiological factors would be of great interest.

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## Keywords

Acute Fever, Medical Unit, Emergency Department, Donka National Hospital (HND)

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## 1. Introduction

Fever is defined as an abnormally high core temperature equal to or greater than 37.5°C in the morning and 37.8°C in the evening. Fever is considered acute when it develops between 0 and 20 days [1]. Very common in clinical practice, the etiological diagnosis, particularly in developing and tropical countries, is often a challenge for clinicians due to their diversity and the limited availability of diagnostic tools. There is a wide spectrum of etiological diagnoses including infectious causes and non-infectious causes [2]. There are multiple causes of acute fever in emergency departments in developing countries. Among them, the most important are malaria and enteric fever. In Mali in 2018, Fomba *et al.* reported that malaria accounted for 58.8% of acute fever etiologies [3]. During an outbreak in Sierra Leone in 2019, Proesmans *et al.* Reported that dengue virus (DENV) infection accounted for 5% of acute fever etiologies and acute chikungunya virus infection for 39% [4]. In New York in 2020, Subramanyam *et al.* reported that acute fever represented 15% of complaints in the elderly and around 5% in young people in the emergency room [5]. In Asia in 2014, Susilawati *et al.* reported that the causes of acute fever are undiagnosed in 8% of cases [6]. In Guinea in 2019, Keita *et al.* reported that fever represents 11.45% of the main reasons for consultation in infectious ENT emergencies at the Labé regional hospital [7]. If fever is often reported as a reason for consultation in the emergency room, few data are specific to acute fever, especially in adults. That is why we undertook this study.

## 2. Methods

This was a descriptive cross-sectional study lasting 03 months (01 January 2022 to 31 March 2022). We included in this study all the patients received in the medical unit at the medico-surgical emergency department of the Donka National Hospital:

- Having an age  $\geq$  18 years old
- Female or male
- From all sources
- Having presented an axillary temperature  $\geq$  37.5°C in the morning and 37.8°C in the evening whose evolution of the fever was between 0 and 20 days.
- Having been hospitalized or treated on an outpatient basis.
- Having given verbal consent.

Data collection was carried out using a pre-established survey form, tested on a group of patients who had come to be consulted for acute fever, then adjusted and validated by the department head.

We collected socio-demographic, clinical and therapeutic data to assess:

1) The incidence of acute fevers: the ratio of the number of patients with acute fever to the total number of patients seen during our study period. The total number of patients received was identified by counting all the patients registered in the registers during the study period.

**Incidence of fever** = number of patients with fever/total number of patients seen  $\times 100$

2) The etiologies of the acute fevers found were simple malaria, salmonellosis, toxoplasmosis, gastritis, urinary tract infections, gastroenteritis, bronchopneumonia, diabetic feet. Other reasons for consultation other than acute fever and clinical signs have been identified. These clinical data made it possible to arrive at certain diagnoses. The different diagnoses retained were taken into account.

3) The management of: these were all the treatments received by the patients throughout the study period. The patients were grouped according to the treatments received during the study, namely: compressed paracetamol, artemether + lumefantrine, infusable paracetamol, quinine, ceftriaxone, ampicillin, oxygen therapy, artesunate and the others (actrapid, captopril, loxen).

Data were analyzed using Epi Info statistical software Version 7.2. The variables have been summarized using proportions.

#### Ethical consideration

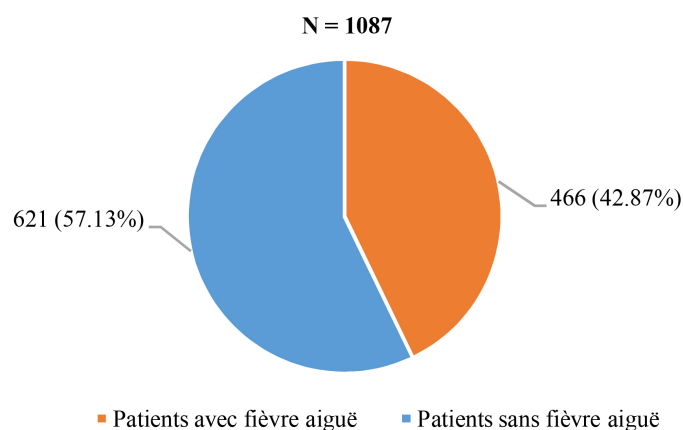
Patient confidentiality was respected.

### 3. Results

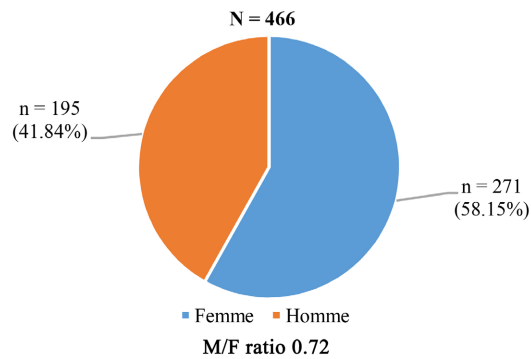
See **Figure 1** and **Figure 2** and **Tables 1-4**.

### 4. Discussion

Our study carried out in the medical unit in the medical and surgical emergency department of the Donka national hospital is one of the national reference hospitals in Guinea.



**Figure 1.** Incidence of acute fever in the medical unit at the medical-surgical emergency department of Donka National Hospital: out of a total of 1087 patients received, we collected 466 cases of acute fever, an incidence of 42.87%.



**Figure 2.** Distribution by sex of the 466 patients in the medical unit in the medical-surgical emergency department of the Donka national hospital: the female sex was predominant with a frequency of 58.15% and a sex ratio of 0.72.

**Table 1.** Distribution according to age groups of the 466 patients in the medical unit in the medical and surgical emergency department of the Donka national hospital: the age group from 20 to 29 years was the most represented with a proportion of 25, 53%. The average age was  $40.04 \pm 18.91$  years with extremes of 18 and 96 years.

| Age groups (years) | Effective  | Proportion (%) | 95% confidence interval |
|--------------------|------------|----------------|-------------------------|
| <20                | 37         | 7.93           | [05.80 - 10.73]         |
| <b>20 - 29</b>     | <b>119</b> | <b>25.53</b>   | <b>[21.74 - 29.62]</b>  |
| 30 - 39            | 71         | 15.23          | [12.23 - 18.74]         |
| 40 - 49            | 68         | 14.59          | [11.65 - 18.05]         |
| 50 - 59            | 59         | 12.66          | [09.92 - 15.96]         |
| 60 - 69            | 65         | 13.94          | [11.07 - 17.35]         |
| >70                | 47         | 10.08          | [07.84 - 13.36]         |
| <b>Total</b>       | <b>466</b> | <b>100.00</b>  |                         |

Mean:  $40.04 \pm 18.91$  years; Extremes [18 - 96 years old].

**Table 2.** Distribution according to the diagnosis of the 466 patients in the medical unit in the medical and surgical emergency department of the Donka national hospital: simple malaria was the main diagnosis with a proportion of 50.86% followed by severe malaria (16.52%).

| Diagnoses                    | Effective  | Proportion (%) | 95% confidence interval |
|------------------------------|------------|----------------|-------------------------|
| <b>Uncomplicated malaria</b> | <b>237</b> | <b>50.86</b>   | <b>[46.55 - 55.57]</b>  |
| <b>Severe malaria</b>        | <b>77</b>  | <b>16.52</b>   | <b>[14.54 - 21.45]</b>  |
| Bronchopneumonia             | 34         | 7.26           | [05.25 - 09.98]         |
| Gastritis                    | 29         | 6.22           | [04.53 - 09.00]         |
| Urinary tract infection      | 25         | 5.36           | [03.99 - 08.26]         |
| Gastroenteritis              | 21         | 4.49           | [02.95 - 06.76]         |
| Salmonellosis                | 15         | 3.21           | [02.78 - 06.51]         |
| Toxoplasmosis                | 12         | 2.57           | [01.32 - 04.16]         |
| Diabetic feet                | 12         | 2.57           | [01.32 - 04.16]         |

**Table 3.** Distribution according to the treatment of 466 patients in the medical unit in the medical and surgical emergency department of the Donka national hospital: the treatment consisted mainly of compressed paracetamol (59.01%) followed by artemether + lumefantrine (50.85%) and infusable paracetamol (40.98%).

| Treatment                 | Effective | Proportion (%) | 95% confidence interval |
|---------------------------|-----------|----------------|-------------------------|
| Paracetamol tablet        | 275       | 59.01          | [54.89 - 63.76]         |
| Artemether + lumefantrine | 237       | 50.85          | [91.48 - 95.53]         |
| Infusable paracetamol     | 191       | 40.98          | [33.13 - 41.86]         |
| Quinine                   | 77        | 16.52          | [12.98 - 19.62]         |
| Ceftriaxone               | 61        | 13.09          | [10.28 - 16.39]         |
| Ampicillin                | 24        | 5.15           | [03.47 - 07.52]         |
| Oxygen therapy            | 2         | 0.42           | [00.12 - 01.54]         |
| Artesunate                | 2         | 0.42           | [00.22 - 01.87]         |
| Others*                   | 61        | 13.09          | [10.28 - 16.39]         |

\*: Actrapid, Captopril, Loxen...

**Table 4.** Distribution according to the evolution of the 466 patients in the medical unit in the medico-surgical emergency department of the Donka national hospital: The majority of our patients were discharged after treatment, *i.e.* a proportion of 61.37%.

| Evolution            | Effective | Proportion (%) | Confidence interval 95% |
|----------------------|-----------|----------------|-------------------------|
| Outpatient follow-up | 286       | 61.37          | [56.92 - 65.74]         |
| Hospitalized         | 176       | 37.77          | [33.42 - 42.21]         |
| Deceased             | 4         | 00.86          | [00.34 - 02.20]         |
| Total                | 466       | 100.00         |                         |

Fatality rate: 00.86%.

Indeed, out of a total of 1087 patients received in the medical and surgical emergency medical unit of the Donka National Hospital, we collected 466 cases of acute fever, an incidence of 42.87%. Leroux [8] had reported in his 2018 study in the West Indies that acute fever was present in 835 admissions, or 6.5% of emergency room admissions in Cayenne. Grandey [9] reported in his 2014 study in New York that acute fever accounted for approximately 5% of visits in adults. This incidence during our study shows that acute fever is one of the most common complaints in consultation at the medical unit in the medico-surgical emergency department of the Donka National Hospital.

The age group of 20 to 29 years was the most represented with a proportion of 25.53%. The average age was  $40.04 \pm 18.91$  years with extremes of 18 and 96 years. Khan *et al.* [10] had reported in their study in 2020 in Pakistan that the most represented age group was that of 21 - 30 years, is 25.2% of cases and an average patient age of  $35.57 \pm 14.17$  years. The predominance of this age group

in our study could be explained by the fact that young people are more exposed to infections, particularly because of their poor hygienic living conditions and vices.

The female sex was predominant with a frequency of 58.15% and a sex ratio of 0.72. Leroux [8] had reported in his study in 2018 in the West Indies that the male sex was predominant, is a frequency of 50.74%. Our results could be explained by the fact that the Guinean female population is higher than the male one according to the Mundi index.

Uncomplicated malaria was the main diagnosis with a proportion of 50.86% followed by severe malaria (16.52%). Leroux [8] reported in his study in 2018 in the West Indies that the most frequent diagnoses were lower respiratory infection (16.6%) followed by viral infections (15.7%) and acute fevers with no etiology found (11.3%). Jung *et al.* in Korea in 2015 [11] reported that influenza was the leading cause of acute fever with 28.0%. This result could be explained by the fact that our study setting is located in an area of high endemicity.

During our study, treatment mainly consisted of paracetamol tablets and artemether + lumefantrine, management was therefore symptomatic and etiological.

The majority of our patients were discharged after treatment, a proportion of 61.37%. Leroux [8] reported in his study in 2018 in the West Indies that 529 (63.3%) of patients benefited from outpatient care, 284 (34.0%) from hospitalization followed by a return home and 22 (2.6%) patients died. Our results could be explained by the fact that the main diagnosis was malaria which has a good evolution under an adequate treatment.

**Boundaries:** Difficult access to certain examinations such as complete blood count, blood culture, c-reactive protein assay, procalcitonin and cyto-bacteriological examination of urine which would have allowed us to learn more about the etiology of acute fevers

## 5. Conclusions

The incidence of acute fevers in the medical unit at the medico-surgical emergency department of Donka National Hospital was high. Malaria was the main pathology. The treatment was etiological and symptomatic.

This high incidence of acute fever could be explained by the fact that Guinea is a malaria-endemic area.

A study taking into account other etiological factors would be of great interest.

## Conflicts of Interest

We declare that we have no conflict of interest in relation to this article.

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## Appendices

### SURVEY SHEET

Date:...../ NOT:.....

#### GENERAL INFORMATION OF THE PATIENT

- Age (in years):...../. Gender: M ; F .
- Marital status: Married ; Single ; Divorced ; Widowed
- Occupation:...../
- Residence: Conakry ; Excluding Conakry .

If outside Conakry specify the city .....

#### ATCD: TERRAIN:

#### CLINICAL ASPECTS

- Signs/Symptoms presented on admission:
- Fever ( $\geq 37.5^{\circ}\text{C}$  in the morning and  $\geq 37.8^{\circ}\text{C}$  in the evening) value to be specified: .....  $^{\circ}\text{C}$ ,
- Chills YES  NO
- Physical asthenia YES  NO
- Anorexia YES  NO
- Headache YES  NO
- Cough YES  NO
- Chest pain YES  NO
- Otagia YES  NO
- Nausea YES  NO
- Vomiting YES  NO
- Abdominal pain YES  NO
- Abdominal distention YES  NO
- Diarrhea YES  NO
- Constipation YES  NO
- Dysuria YES  NO
- Oliguria YES  NO
- Pallor YES  NO
- Dyspnea YES  NO
- Altered consciousness YES  NO
- Stiff neck YES  NO
- Hemiparesis YES  NO
- Abdominal contracture YES  NO
- Others.....

SELECTED DIAGNOSIS: .....

#### THERAPEUTIC VARIABLES

- Antipyretics:
  - Paracetamol YES  NO
  - Others: .....
- Antibiotics:
  - Ceftriaxone YES  NO



- Augmentin YES  NO
- Others: .....
- Antimalarials:
  - Artesunate YES  NO
  - Artemether YES  NO
  - Quinine YES  NO
  - Others: .....
- Other treatments: .....