

## Study of Presumed Bacterial Sexually Transmitted Infections

Mamadou Tidiani Coulibaly<sup>1\*</sup>, Falaye Sissoko<sup>1</sup>, Moumine Z Diarra<sup>1</sup>, Diallo Adama Toutou<sup>1</sup>, Soumba Kanouté<sup>1</sup>, Zanafon Ouattara<sup>1</sup>, Soungalo Daou<sup>2</sup>

<sup>1</sup>Hôpital Gabriel Toué service urologie Bamako Bp: 267 Mali

<sup>2</sup>Hôpital Point G maladie infectieuse Bamako BP: 267 Mali

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\*Corresponding author: Mamadou Tidiani Coulibaly

Hôpital Gabriel Toué service urologie Bamako Bp: 267 Mali

### Abstract

### Original Research Article

**Purpose:** The aim of the study was to evaluate the application of the WHO syndromic STI management strategy. **Patients and methods:** We carried out a prospective, descriptive study of patients admitted to our hospital. For presumed bacterial STIs at the urology department of CHU Gabriel TOURE from February 2017 to May 2018. HIV cases were not included. **Results:** We obtained the following results: 100 STI cases (Dysuria, Cystitis, Scrotal swelling, Prostatitis). The sex ratio was 88% in favor of males. The 26-35 age group was the most affected, with married patients the most represented. All cases were clinically diagnosed, and further investigations were requested to confirm the diagnosis. In terms of syndromic management, probabilistic antibiotic therapy was applied to each type of STI, and the antibiotic therapy was readapted. Treatment was adapted to the antibiogram. Overall, 88.28% of all patients were cured. **Conclusion:** The WHO proposes syndromic management of STIs in countries where laboratory diagnosis is not possible due to doubtful results, insufficient human resources or obsolete equipment.

**Keywords:** STI, Bacterial, urology.

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## INTRODUCTION

Infectious diseases, and in particular sexually transmitted infections, are not a relic of the previous century. On the contrary, they are a permanent and rapidly evolving reality. It is estimated that 350 million new cases of sexually transmitted infections occur worldwide every year [1]. STIs (Sexually Transmitted Infections) are a major public health problem worldwide. Most of these infections can be easily diagnosed and treated. It is only if they are not treated early and correctly that they can lead to complications (infertility, maternal and newborn mortality) and after-effects, with the risk of being passed on to one's partner(s) [2]. In the past, these diseases were known as venereal diseases, the name deriving from Venus, goddess of love. Then, until the 1990s, the term STD (for "sexually transmitted disease") came into common usage. Since 1999, the term STD has gradually been replaced by STI [3], as the term "infection" rather than "disease" better reflects the fact that some infections are asymptomatic. The term STI also takes account of the fact that these infections are also transmitted by blood contact, as in the case of hepatitis B, hepatitis C and AIDS [3]. STIs include at least 30 bacterial, viral and parasitic pathogens that are sexually transmitted. While many are curable (chlamydia, gonorrhea, syphilis, genital herpes, condyloma,

chancroid, hepatitis B, hepatitis C, scabies, cystitis...), incurable STIs, such as Herpes virus 2 and AIDS, add to the heavy burden of morbidity and mortality.

The syndromic approach to STIs has the advantage of being:

- It can be applied at several professional levels,
- Faster, more accessible treatment
- Comprehensive care offered to patients from the first visit [10].

Study of sexually transmitted infections in consultation at the urology department of CHU Gabriel TOURE.

## METHODOLOGY

THIS was a descriptive, prospective study carried out in the urology department of CHU Gabriel Touré, from February 1, 2017 to May 31, 2018.

Included in our study were all patients received in urology consultation who had at least one of the signs of STI whose file was complete (patient followed until the end of treatment). Our method included three phases:

- Design and preparation of the survey form:
  - Administrative data such as: age, gender, nationality, ethnicity;

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- Parameters concerning the parents (medical and surgical history of the patient);
  - Clinical and para-clinical parameters (functional signs, physical signs, complementary examinations);
  - Treatment data;
  - Progress data.
- Data entry and analysis using Word and SPSS software.

The treatment protocol is based on the syndromic approach published by the WHO and adopted by Mali's standards and procedures.

### Definition of the syndromic approach

Characteristics of the syndromic approach (syndromic case management):

- Classify the main causative agents according to the clinical syndrome they cause;

- Treat the patient for all major causes of the syndrome;
- Ensure that partners/patients are treated, counseled and educated in treatment adherence and risk reduction.
- WHO syndromes:
  - Urethral discharge and/or dysuria
  - Vaginal discharge and/or lower abdominal pain
  - Newborn conjunctivitis
  - Scrotal swelling Genital ulceration
  - Inguinal bubo.

## RESULTS

Our study yielded the following results. Patients aged 26-35 and 15-25 years were the most affected, 41% and 39% respectively (Table I). 88% of patients were male (Table II). 41% of patients were of Bambara ethnicity, followed by Soninke (19%). 31% of patients were students, followed by 17% of civil servants. 51% of patients were married. 80% of patients were self-referred.

**Table I: Age distribution of patients**

Age range	Effective	Percentage (%)
15-25	39	39
<b>26-35</b>	<b>41</b>	<b>41</b>
36-45	14	14
46-55	3	3
Plus 55 ans	3	3
Total	100	100

**Table II: Breakdown of patients by sex**

Sexes	Effective	Percentage (%)
<b>Masculine</b>	<b>88</b>	<b>88</b>
Feminine	12	12
Total	100	100

Clinical presentations were dominated by urethral discharge and/or dysuria, at 43%, followed by vaginal discharge and/or lower abdominal pain (Table III).

**Table III: Distribution of patients according to clinical signs**

Diagnostics	Effectives	Percentage
<b>Urethral discharge and/or dysuria</b>	<b>43</b>	<b>43</b>
Vaginal discharge and/or lower abdominal pain	20	20
Urinary burning, Urinary urgency, Dysuria	11	11
Urethral tingling	7	7
Prostatitis, prostaticorrhea	6	6
Testicular pain	4	4,0
Genital ulceration	4	4
Dermatosis of the penis	2	2,0
Genital pruritus, Acorn knot	2	2,0
Scrotal pruritus	1	1
Total	100	100,0

**Table IV: Distribution of patients according to clinical form**

Forms Clinique	Effectives	Percentage%
Prostatitis	6	6
<b>Urethritis</b>	<b>63</b>	<b>63</b>
Tumefaction scrotal	5	5
Cystitis	13	13
Vaginitis	5	5
Ulceration genital	8	8
Total	100	100

The majority of patients had a prostate that was not painful to the pelvic touch (61%), followed by a painful prostate (24%) and pathological leukorrhea (10%). 58% of patients had a normal ECBU. Acute

urethritis was the most frequent pathology with 63 cases (63%), followed by cystitis with 13 cases (13%) (Table V).

**Table V: Distribution of patients according to germs isolated at ECBU**

Germs	Effectives	Percentage
Sterile	58	58
<i>Escherichia coli</i>	17	17
<i>Neisseria gonorrhoea</i>	5	5
<i>Enterobacter Sp</i>	4	4
<i>Staphylococcus Sp</i>	4	4
<i>Leukocyturia</i>	4	4
<i>Klebsiella pneumoniae</i>	3	3
<i>Streptococcus agalactiae</i>	2	2
<i>Cytrobacter koseri</i>	2	2
<i>Candida albicans</i>	2	2
Total	100	100,0

All our patients received antibiotic treatment. After the first treatments, 90% of our patients were completely cured (Table VI).

**Table VI-Monitoring**

Resultants	Effective	Percentage
Healing	90	90
Recut	5	5
Reinfection	5	5
Total	100	100

**Figure 1: C. trachomatis urethritis**



**Figure 2: N. gonorrhoeae urethritis**



**Figure 3: Male genital ulceration**



**Figure 4: Genital ulceration in women**





**Figure 5: Genital herpes in men**



**Figure 6: Genital herpes in women**

## DISCUSSIONS

At the end of the 15-month survey period (February 2017 to May 2018) in the urology department of CHU Gabriel Toure 320 cases of sexually transmitted infections were diagnosed out of 2605 consultations, i.e. a frequency of 12.28%, 100 of which met our inclusion criteria. The literature shows that sexually transmitted infections have always been a topical issue.

In our study, the most represented age group was 26-35 with 41%.

In Senegal, Thiam D found that the maximum peak was between 16 and 30 years of age [5]. In Mali: Mme Keita A., Soumaré D. and Coulibaly MT *et al.*, found that the 15-28, 14-30 and 23-32 age groups were the most represented, with 50.5%, 49.4% and 48.91% respectively [6-8].

This could be explained by the fact that this age group is the most sexually active, and male condom use is less important, if not ignored.

Our study showed a clear predominance of males with 88 cases (88%) over females with 12 cases (12%).

Our results concur with those of Coulibaly MT *et al.*, [8], who reported 95.43% males versus 4.57% females, and Sanogo D [9], who reported 90.2% males versus 9.8% females.

In our series, this male predominance can be explained by the presence of a gynecology department at CHU Gabriel Touré. As a result, all cases of STI with a purely gynecological manifestation are seen in the gynecology department, while only cases with a

urological or urogenital manifestation in females are seen in the urology department.

In our study, all socio-professional strata were represented, among them students were the most numerous with 31%; the same observation was made by Soumaré D with 49.9% Diallo R with 43.8% Guindo A with 41.4% and Déssé D with 47% [7, 11-13].

This could be explained by the lack of means and/or information on STI protection and prevention measures (the patient does not consult a doctor as soon as the first symptoms of infection appear).

In our series, the proportion of married patients was highest, at 51%, compared with 49% of unmarried patients. In Senegal, Thiam D also noted a predominance of married people (78.8%), while the percentage of single people was very low, a notion reported by Daramola and Oyediran [14] in Africa.

However, Coulibaly MT *et al.*, [8] and Soumaré D [7] found a predominance of singles, with percentages of 56.74%, 58.53% and 57.2% respectively.

It is important to note that in Mali, the general population marries relatively early. Soumaré D. [7] in 1998 found an average age of 17 at first marriage. Moreover, according to Chapaz G. in France, the age of first marriage is between 20 and 24 [15].

Uroculture was performed in the majority of patients in our study series, 58 cases or 58% had a sterile culture. However, 42 patients had a positive culture, with *Escherichia coli* being the most incriminated, followed by *Enterobacter sp* and *Klebsiella pneumoniae*.

The sterile culture in the majority of our patients can be explained by self-medication and/or incorrect antibiotic treatment, which more often than not modifies the result of the ECBU with antibiotic susceptibility test.

Other germs such as *Trichomonas vaginalis*, *Gardnerella vaginalis* and *Chlamydia. T* (not reported in the tables) were detected, explaining contamination via the vagina.

These results confirm the association of a urinary tract infection and a sexually transmitted infection, and that urinary tract signs are not due to bacteria alone; further investigations are necessary even in the absence of a negative E.C.B.U. [16].

The WHO estimates the annual number of *Chlamydia trachomatis* infections worldwide at 92 million, including 4 million new cases in North America and 5 million in Western Europe [2]. In subacute urethritis, *T. vaginalis* is implicated in 4% of cases, compared with 25% for *Chlamydia trachomatis*.

### Urethritis

We observed 63 cases of urethritis (63% versus 46.52% in Coulibaly MT *et al.*, [8]).

Functional signs were dominated by burning, dysuria, urethral discharge and hypogastric pain in all our patients.

E.C.B.U. is germ-poor, in line with the literature, and most often associated with *Chlamydia trachomatis* or *Mycoplasma* [14]. *Neisseria gonorrhoea* was found in 4 cases, so urethral swabbing is required.

Treatment was started with azithromycin without waiting for bacteriological results, then readapted to the antibiogram.

### Acute prostatitis:

We observed prostatitis in 6% of cases. This result is far from those of Coulibaly MT [8] *et al.*, and F Ly [17] who found respectively 21.52% and 22.8% due to a complication of urethritis poorly treated as acute prostatitis.

Concerning functional signs, our patients suffered more from dysuria, pollakiuria, mictional burning, hypogastric pain, mictional urgency and fever.

So for F. Ly it is the association of dysuria and pollakiuria that is at the forefront [17].

*Escherichia coli* is the most common cause, followed by *Enterobacter sp*. In F. Ly's study [17], as in many others, *E. coli* was the main cause.

Treatment began with ciprofloxacin, and was subsequently adapted according to the antibiogram.

### Acute cystitis:

We detected 13 cases of cystitis (13%), including 7 men (cystitis +prostatitis) and 6 women, which is not in line with literature data, due to the fact that we recruited more men than women.

JARDIN and colleagues show that cystitis in women is a public health problem, since this diagnosis is made around 3 million times a year in France. This is due to the brevity of the urethra in women.

F. Ly finds a frequency of 40%, including 35 women and 10 men [17].

The most common functional signs were pollakiuria, mictional burning and hypogastric pain.

The majority of germs isolated were *E. coli*, in line with the literature. For JARDIN, 60% of germs isolated in cystitis are *E. coli*.

Asymptomatic bacteriuria was not reported in our study, due to the fact that E.C.B.U. was given according to the signs of a sexually transmitted infection.

Management was initiated with single-dose fosfomycin, then readapted according to the antibiogram.

### Scrotal Swelling:

This was observed in 5 cases.

All these patients suffered from scrotal pain with increased testicular volume, urinary burning, hypogastric pain and fever.

The germs isolated were E. coli, which is in line with the literature [18].

Treatment started with ofloxacin, then readapted to the antibiogram.

Overall, the treatment and monitoring of our 100 cases of sexually transmitted infections resulted in a 100% cure rate. This result is superior to that of F.Ly [17]. According to the latter, the initial cure is obtained easily in around 85% of cases; 74.43% of our cured patients were treated with a combination of fluoroquinolone and cyclin, and 25.57% were treated with other antibiotics. These results allow us to confirm the low rate of resistance to the fluoroquinolone-cyclin combination reported by other authors, and to affirm a definite cure in the absence of abnormality or obstacle, whenever treatment is given according to the antibiogram [19].

In our study, we observed 5 cases of reinfection during treatment.

The majority of reinfections were due to sex and sexual activity.

We detected 5 cases of relapse, 5% of which were due mainly to inadequate treatment; this result is in line with the literature.

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