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Threatened preterm labor in N'djamena mother and child university hospital (Chad)

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Abstract

Introduction: Threatened preterm labor (TPB) is defined as uterine contractions associated with cervical modifications. It is an incident during pregnancy that in the lack of, or despite appropriate treatment will result in a birth occurring between 22 and 37 weeks of amenorrhoea. The aim of this study was to improve the management of preterm delivery.

Patients and method: This was a prospective descriptive study covering a period of 1 year from June 2021 to May 2022 carried out in the gynaecology-obstetrics department of N'Djamena Mother and child University hospital. All patients admitted (NMCUH) for TPB and who consented to participate in the study were included. Data were collected and analyzed using SPSS and Excel.

Results: The frequency of Threatened preterm labor was 11.1%. The mean age was 23.42 years. Main risk factor was low socioeconomic status with 20.5%. Reported etiologies were malaria (55.7%) and urinary tract infection (7.3%). Twenty-seven pregnant women (27.8%) had presented severe or moderate PAD were hospitalized. All patients received strict rest and tocolysis. Lung maturation was achieved in 87.7%. Sixty-six pregnant women (54.1%) delivered before term.

Conclusion: threatened preterm labor is a common condition in our context. Prevention requires quality ante natal cares.

Keywords: Threatened preterm birth; Management; NMCUH; Chad

1. Introduction

According to the World Health Organization, the threatened of preterm labor (TPL) is a complication of pregnancy occurring between 22 and 37 weeks' gestation. It is characterized by regular and painful uterine contractions associated with cervical changes that will lead to preterm delivery in the absence of medical intervention [1,2].

Datas on its frequency are scattered. In developed countries, 15 to 20% of pregnant patients are affected by (TPL) [3]. In France, it represents 10% of hospitalized obstetrical pathologies [4]. In Africa, rates ranging from 13.7% to 25% have been reported in Congo [5], Tunisia [6] and Chad [7].

However, management remains dependent on the term and the technical platform. The cases of great prematurity require an important therapeutic arsenal, which is often fraught with failure.

Whatever the term or the care setting, the leitmotiv is to improve the maternal and fetal prognosis.

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However, the availability of certain means of neonatal resuscitation and management of premature babies is lacking in our environments, which has a negative impact on neonatal prognosis.

Therapeutically, preventive measures can be taken if the risk of preterm delivery is established during pregnancy monitoring. This requires follow-up by trained personnel capable of identifying uterine anomalies that may cause (TPL). This finding contrasts with our particularities where patients are not followed and seen at the stage of complication.

We therefore felt it necessary to conduct this study at the N'Djamena Mother an child University Hospital in order to assess the management of (TPL).

2. Patients and method

This is a prospective descriptive study covering a period of 1 year from June 1, 2021 to May 31, 2022 on the management of threaten preterm labor in N'Djamena Mother and child University Hospital (NMCUH) . We recruited patients admitted for (TPL) in the emergency room or in consultation. We followed them up in hospital and as outpatients for those who were not hospitalized. We included in this study all patients admitted for (TPL) at the NMCUH during the study period, with a pregnancy term of 28-36 days + 6 days. The variables studied were epidemiological, clinical and therapeutic. Data were entered using Word 2013 and Excel 2013 and analyzed using SPSS 18.0 software.

3. Results

3.1. Frequency

During the study period, 122 cases of threatened preterm labor were recorded, among 1098 pathological giving a frequency of 11.1%.

3.1.1. Age

Table 1 Age group

Age group	n	%
≤20	17	13.9
21-25	41	33.6
26-30	22	18.1
31-34	18	14.8
35-39	14	11.4
≥40	10	8.2
Total	122	100

Median age was 23.42 ± 6.7 years (15-42). Age group 21-25 years was the most represented with 33.6%.

- Admission mode

More than ¾ of patients were referred.

- Parity

Nulliparous represented 32% (n=39) followed by pauci parous (27%, n=33), multiparous (23.8%, n=29), and large multiparous (17.2, n=21)

- Prenatal cares (PNC)

In 43.4% (n=53), the patients attended between 1-3 PNC. Those who had no contact and those with ≥ 4 ANC represented 31.2% (n=38) and 25.4% (n=31) respectively

- Risk factors.

Main risk factors found were: previous PAD (18%, n=22), low socioeconomic level (20.5%, n=25), previous abortion (13.9%, n=17), short inter reproductive space (5.8%, n=7)

- Reason for consultation

Lumbopelvic pain was the main reason for consultation with 82.7% (n=101) followed by loss of LA (8.2%, n=10), genital bleeding (4.2%, n=5)

- Term of the pregnancy.

Term was between 32 SA-34 SA in 53.2% (n=65)

Patients with term pregnancy > 34 SA represented 12.3% (n=15).

In 34.5% (n=42) the term was 28-31+6 days.

- Status of the membranes.

Twenty pregnant women (16.4%) had ruptured membranes.

- Baumgarten score

Baumgarten score combining cervical dilatation, uterine contraction, bleeding and loss of amniotic liquid was < 3 in 64.8% (n=79).

Score was between 3-6 in 22.9% (n=28) and > 6 in 12.3% (n=15)

- Cervical length

Cervical length was > 25mm in 36.9% (n=45). Those with cervical length between 15-25 mm and < 15 mm represented respectively 32.8% (n=40) and 9% (n=11)

3.1.2. Etiologies

Table 2 Etiologies

Étiologies	**n**	**%**
Cervix and isthmic defect	5	4
Multiple pregnancy	3	2.3
Hydramnios	6	4.8
Premature rupture of the membranes	10	8.2
Placenta prævia	4	3.2
Malaria	68	55.7
Urinary infection	18	14.5
Genital infection	9	7.3
Total	122	100

Malaria was the most noted etiology with 55.7%.

- Therapeutic aspects

All the pregnant women were rested in this series (outpatient or inpatient)

- Mode of follow-up

Patients with mild PAD represented 72.1%.

3.1.3. Tocolytics

Table 3 Tocolytic used

Tocolytiques	n	%
Nifedipin	93	76.2
Nicardipin	7	5.7
Indometacin	1	0.8
Salbutamol	21	17.3
Total	122	100

Nifidipin was used in 76.2%.

- Pulmonary maturation

Pulmonary maturation was indicated in pregnant women with a gestational age less than 34 SA and betamethasone was the most administered with 87.7%(n=107).

- Etiological treatment

Antimalarials and antibiotics were the most used etiological treatment with 55.7% (n=68) and 22.1% (n=27) respectively.

- Other treatment

Other drugs used in the management were: phloroglucinol (16.5%, n=20), paracetamol (60.6%, n=74), magnesium sulfate (7.3%, n=9), and transfusion (15.6%, n=19).

- Evolution

Pregnant women had given birth before term in 54.1%.

Delivery was by vaginal delivery in 74.6% .

- Fetal prognosis

In 54.1% of newborns were premature. We recorded 12 cases of stillbirths or deaths giving 9.8%.

4. Discussion

The incidence of PTL in this study was 11.1%. This result is close to that of Foumsou et al [8] in Ndjamena, Chad, in 2016, who reported 13.7%, but lower than that of Haroun. [3] in Abéché, Chad, in 2021, who reported a frequency of 22.1%. This result could be explained on the one hand by the status of the NMCUH which is a national reference center for reproduction motivating referrals.

Regarding age, the age group of 21-25 years was the most represented with 33.6%. The average age of pregnant women was 23.42 years. This average age is similar to that of Haroun [3] in Abeche, Chad, in 2021, who reported an average age of 21.3 years, and lower than those of Butaud [9] in Lyon, France, in 2014 and Moutari [10] in Fez, Morocco, in 2019, who respectively obtained an average age of 27 years and 26.6 years. This difference could be explained by the frequent early marriage in our regions.

According to the literature, the best way to prevent PTL is to perform regular prenatal consultations [2]. The WHO recommends 8 prenatal contacts. These recommendations are variously applied by the authors. In this study, patients with 1 to 3 contacts were the most represented with 43.4%. This figure is consistent with that of Haroun O. [3] in Abeche,

Chad, in 2021, who reported 41.7%, but lower than that of Diabaté [11], who reported 49.3% of pregnant women with at least 4 antenatal contacts.

Lumbopelvic pain was the main reason for consultation with 82.8%. This predominance is different from those found by Diabaté [11] who found 66.6%. This difference could be explained by the fact that in our context, pregnant women resort to self-medication for the other symptoms except for pain, which makes them fear the possibility of expulsion of the fetus.

According to Lansac [12], pelvic pain is the dominant symptom of the threat of preterm delivery. This pain is due to contraction of uterine fibers affecting cervical effacement and dilation.

The clinical diagnosis of PAD is made when uterine contractions are associated with cervical changes. This can take on different forms, which is why PTL is classified. Several classifications are used. The best known in our context is based on the Baumgarten score. According to this score, 64.8% of the pregnant women had a mild PTL picture. This result is close to that of Diabaté . [11] who reported 54.3% of patients with mild PTL. The rate obtained in this series would be related to factors such as the monitoring of the pregnancy, pathologies that occurred during the pregnancy and the physical condition of the mother. According to Lansac [12], patients with a term pregnancy < 34 SA represent 1/2 of the population. This is still valid in this series where pregnancies with a term of less than 34 weeks represented 61.5%.

This result could be explained by the fact that many pregnant women did not follow up their pregnancies properly to detect pathologies that could cause PAD and risk factors for PTL.

Classification of PTL can be based on cervical length measured on ultrasound. This approach is increasingly recommended by various authors [8,13]. Cervical length between 20-30 mm was found in 36.9% of cases. Muszynski [33] in Amiens, France in 2019 notes that 48% of patients who had a cervix ≤ 21mm. According to Goffinet [3], there is a fairly large proportion of pregnant women with a short cervix who will not present any painful manifestations during gestation. Thus, the morphological characteristics specific to each type of population may bias this finding.

From the etiological point of view, malaria and urinary tract infection were the two intercurrent pathologies responsible for the threat of preterm delivery, with 55.7% and 14.5% respectively. This result corroborates the data of Haroun O. [3] in Abeche, Chad, in 2021 and Foumsou et al [8], who observed 44% and 66% respectively of the cases of Malaria was the most common cause of PAD. The predominance of malaria and urinary tract infection as etiologies of threatened preterm delivery was reported by several African authors [8,14]. This can be explained by the endemicity of malaria in our regions and the urinary stasis during pregnancy with a proliferation of germs that favors the occurrence of urinary infection.

The management of PAD remains well codified with a remarkable success rate. The recommendations of the study by Kayem et al [2] on the management of a threat of premature delivery stipulate that screening for bacteriuria and urinary infection by a cytobacteriological examination of the urine should be systematic, and that short antibiotic treatment should be preferred to short term treatment and should be carried out in the event of bacterial colonization or urinary infection for a period of 4 to 7 days.

From a therapeutic point of view, the treatment of PTL follows four main rules:

Rest, tocolysis, pulmonary maturation and treatment of the etiology [13,14]. It is unanimously accepted that rest is the first treatment for PTL. This rest can be instituted at home or in hospital. All pregnant women were rested in this series. However, not all pregnant women are eligible for hospitalization, so except for moderate and severe PTL, they are often admitted to hospital. We hospitalized 27.8% of patients for severe or moderate PTL. Apart from rest, the symptomatic treatment of PTL aims to calm the uterine contractions responsible for cervical changes and likely to lead to expulsion of the product of conception in the absence of treatment [13,15]. Several medical treatments can be used [13,16]. According to recent data [1,17], the most commonly used methods are calcium channel blockers, betamimetics and non-steroidal anti-inflammatory drugs. The use of these different molecules takes into account the condition of the pregnant woman (blood pressure, heart rate, number of fetuses). The rate of use of these drugs depends on the experience or habit of the clinician and the availability of the molecule.

We reported a rate of use of Nifedipine in 76.1%, the tocolytics are active principles used to prolong gestation in case of PTL or to slow down the UC during labor in case of fetal distress [18]. The study by M. Doreta and Kayem [2] showed that Atosiban and nifedipine were equally effective in prolonging pregnancy. Unlike the protocols established by most authors [15, 16] who recommend limiting the use of tocolysis to 48 hours, the protocol established in our department

extends this use for a total duration of 5 days because we consider this extension necessary to reduce the impact of contractions over a maintenance period of 72 hours; this allows us to further prolong the pregnancy. This result is close to that of Foumsou [8] in the same structure in 2016 and Tur in 2014 [19] report respectively a Nifedipine use rate of 80% and 71%. Our rate of use of Nifedipine could be explained by on the one hand the habit of the service for some years and on the other hand by the fact that there are fewer side effects when using Nifedipine. Concerning the etiological treatment, we noted a rate of use of anti-malarial and the antibiotic, respectively 65,6%, 60,6%. This attitude confirms the data in the literature according to which the initiation of treatment for PTL depends on the etiology. Apart from the treatment given, the aim of management is to prevent hyaline membrane disease. Thus, corticosteroid therapy is the means of choice [19]. However, the use of this corticosteroid therapy remains dependent on the term of the pregnancy and certain notions such as infection (maternal fever or diabetes). It is recommended to perform fetal lung maturation when the term is < 34 SA. This study corroborates these data with 87.7% of pulmonary maturation based on betamethasone (12 mg per day intramuscularly to be renewed after 24 hours).

The evolution under treatment remains dependent on the degree of PTL and the patient's response to the treatment instituted [15].

Pregnancies were carried to term in 45.9% of pregnant women, compared with 54.1% who delivered prematurely. However, the prognosis of the fetus, regardless of whether the pregnancy was carried to term or not, remains reserved. According to Lansac [12], PTL is grafted with fetal complications such as prematurity, and death due to hypoglycemia, hypothermia, or infection. We recorded a rate of 54.1% of live premature babies and 9.8% of stillborn or dead babies.

5. Conclusion

Threatened preterm delivery is a frequent condition in NMCUH. Main characteristics of the patients are: young, married, non-referred and housewives and having performed 1-3 PNC. Lumbopelvic pain is the main reason for consultation. The etiological research shows that malaria and urinary tract infection are the main incriminating conditions. Management is focused on rest, tocolysis and etiological treatment. Maturation is done for women carrying a pregnancy less than 34 SA. Reducing the prevalence of PTL requires quality PNC in which risk factors are identified and the conditions that cause PTL are diagnosed and managed appropriately.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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