Prematurity: Epidemiological Profile and Risk Factors for Prematurity at the CHU Marrakech

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Abstract

Prematurity is the leading cause of neonatal mortality and morbidity. **Objective:** To study the epidemiological aspects and the etiological factors of prematurity. **Material and Methods:** A retrospective study about the newborn with prematurity and hospitalized in the neonatal and neonatal resuscitation department of the Mohammed VI university hospital during the period was from January 2019 to December 2019. **Results:** 585 newborns were collected including 110 premature newborns (18.8%). The average gestational age was 30.4 weeks, with a predominance of the age group between 28 weeks and 31.6 weeks (36%), a male predominance was noted (65%). Cesarean in 32.5% of cases. The low socio-economic level is reported in 68.2% of cases, the low level of education in 60% of cases, 55.4% of mothers live in rural areas. Pregnancies were only well followed in 38.1%. The main causes of prematurity: maternal-fetal infections in 30% of cases, the medical decision in 23% of cases, and twin pregnancy in 20% of cases. Premature rupture of the membranes was responsible for 15% of the cases. No cause was detected in 12% of cases. Respiratory distress, asphyxia and prematurity were the main causes of transfer. The associated pathologies were distress respiratory in 40% of cases, maternal-fetal infection in 30% of cases, hypotrophy in 20% of cases, and jaundice in 8% of cases. Death occurred in 40% of cases. **Conclusion:** Several etiological factors associated with prematurity were identified. Tackling these factors is an effective way to prevent prematurity in our low-income countries, the medical decision in 23% of cases, and twin pregnancy in 20% of cases. Premature rupture of the membranes was responsible for 15% of the cases. No cause was detected in 12% of cases. Respiratory distress, asphyxia and prematurity were the main causes of transfer. The associated pathologies were distress respiratory in 40% of cases, maternal-fetal infection in 30% of cases, hypotrophy in 20% of cases, and jaundice in 8% of cases. Death occurred in

40% of cases.

1. Introduction

According to the World Health Organization (WHO), prematurity is defined as birth occurring before 37 completed weeks of amenorrhea, *i.e.* before the 259th day from the 1st day of the last menstruation, but at least 22 weeks, and this, whatever the weight but at least 500 g [1]. We usually distinguish late prematurity (births between 34 and 36 weeks old), moderate prematurity (32 to 33 weeks old), extreme prematurity (28 to 31 weeks old) and very high prematurity (<28 weeks) [2]. Prematurity remains the main cause of neonatal mortality in both developed and developing countries [3]. The pathologies that cause these newborns to die can also lead to severe lifelong disability in those who survive. A Study of Current Data on the Prematurity: Epidemiological, Etiological, Physiopathological, therapeutic ... is an essential or even essential element to answer the questions and requirements of obstetricians, neonatologists, doctors, parents and decision-makers in order to deal with a pathological entity that goes far beyond the medical framework and sanitary. We therefore want this study to take stock of the epidemiological aspects, and the main risk factors of prematurity in a Moroccan maternity hospital.

2. Material and Methods

The medical records of premature infants admitted to the neonatal and neonatal resuscitation service of the CHU VI of Marrakech with a diagnosis of prematurity in the hospital, between January 2019 and December 2019 were reviewed retrospectively. The following variables were examined from their files: gestational age, mode of delivery, anthropometric data, APGAR score, trophicity, neonatal complications, mortality and causes of death. In the mother, we studied the socio-demographic data, the gyneco-obstetrical history, and the pathologies occurring during pregnancy.

3. Results

We retained 110 premature newborns over 1 year. During our study period, 585 newborns were hospitalized, a frequency of 18.8%. The population was predominantly male, 71 versus 39, or a sex ratio was 1.8 (Figure 1).

The term was known in 77.2% of cases, and the most common means of pre-

cision was the date of the last period (60%). The mean gestational age was 30.4 weeks, with a slight predominance of the age between 28 weeks and 31.6 weeks (36%).

Extremely prematurity and extremely prematurity represented 2% and 38% of the population respectively as shown Figure 2.

The age of the mothers varied from 18 to 45 years with an average of 28.7 ± 5 years, primiparity was found with respective rates of 38.1%. The socio-economic level was considered low in 68.2% of cases, the low level of education in 60% of cases. Residence in rural areas represented 55.4% of percentage against 45% in urban areas. 4 admitted were from single mothers, *i.e.* a percentage of 3.6%. Pregnancies were only well followed in 38, 1, and consanguinity was found in 16.3 % of cases (Table 1).

Among the gyneco-obstetric history, and the medical history detected during pregnancy, several of them were associated with the onset of prematurity. They were genitourinary infections (30%), arterial hypertension (hypertension) (20%), pre-eclampsia (12%), threat of premature delivery (PAD) (15%), cervico-isthmic open bite (5%), isolated hemorrhages and gestational diabetes (5%).

The average birth weight was 1800 g [900 g - 2100 g], 20% of premature babies were hypotrophic. The Apgar score was below 7 at the 1st minute and at the 5th minute in 34.54 and 10% of cases respectively (38 and 10 cases). The causes of prematurity are dominated by infectious causes 30%, ovular foeto-placental causes 34% of cases, unexplained prematurity in 12% of cases. Morbidities during
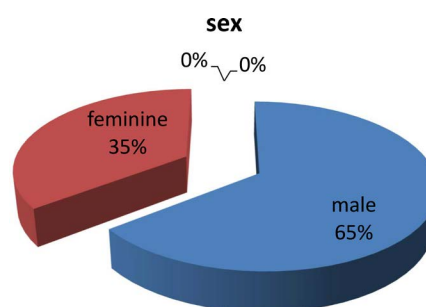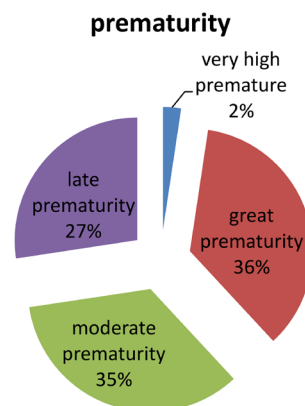

Figure 1. Distribution of patients by sex.

Figure 2. Distribution according to the classification of prematurity.

Table 1. Distribution according to maternal characteristics.

		Number	percentage
Age	<18 Years	6	5.4
	Between 18 and 34 Years Old	84	76.3
	> Or = 35 Years	20	18.1
Parity	1	42	38.1
	>1 and <4	44	40
	≥4	24	21.9
Socio-economic level	Low	75	68.2
	Way	35	31.8
	High	0	0
Level of education	Never attended school	66	60
	Primary	39	35.5
	Secondary	4	3.6
	University	1	0.9
Origin	Rural	61	55.4
	Urban	49	45.5
	Married	104	94.6
	Single	4	3.6
	Widow	1	0.9
	Divorcee	1	0.9
Pregnancy follow-up	Well followed	42	38.1
	Poorly followed	28	25.4
	Not followed	40	36.4
consanguinity		18	16.3

hospitalization respiratory distress in 40% of cases, maternal-fetal infection in 30% of cases, hypotrophy in 20% of cases, jaundice in 8% of cases, and the death rate in 40% of cases. Among the causes of death, INC occupies 1st place with 56% of cases.

4. Discussion

The prematurity rate varies from country to country and, within a country, from region to region. In all countries, rates are increasing, even in the most developed countries where the advancement of knowledge of risk factors and mechanisms relating to preterm labor, and the introduction of several public health and medical policies should rather lead to a reduction in rates [4]. Preterm births average 12% in poor countries compared to 9% in higher income countries [3]. In our population, it is also noticed a high rate of prematurity, which is consistent with most of the other studies [3] [4]. In our study, 65% of preterm

infants were boys, which is consistent with most other studies [5] and the cause of male predominance is not yet fully explained [6]. We found that: the low socio-economic level, the low level of education, as well as geographic origin are important risk factors associated with preterm birth and this is consistent with other studies in the literature [7] [8] [9]. There is a correlation between primiparity and prematurity; a French study on the risk factors of prematurity, demonstrated that primiparity is a risk factor significantly linked to prematurity [10]. Our study cannot claim to confirm or deny the impact of primiparity, but its rate high of 38.1% should be taken into consideration. This work also shows that suboptimal prenatal care and monitoring of pregnancy are significantly associated with the risk of prematurity. These results are confirmed by most of the data in the literature [11] [12]. Hence the importance of insisting on improving the monitoring of pregnancies with regular monitoring of pregnancies at risk of prematurity. Maternal-fetal infections are also determining causes of prematurity [13]. Maternal-fetal infection is retained as the cause of prematurity in 30% of cases, it represents the 1st cause. These infections should be systematically detected during pregnancy [14]. The other risk factors remain dominated in our study as elsewhere by arterial hypertension (hypertension), pre-eclampsia [15] [16], obstetric factors such as the threat of preterm delivery (PAD) [17], cervico-isthmic open bite [16], isolated hemorrhages and gestational diabetes [15].

Thus, we must insist on: improving the monitoring of pregnancies with regular monitoring of pregnancies at risk of prematurity in a level III maternity; screening and treatment of the infection responsible for the majority of cases of prematurity in our series.

Insufficient monitoring of pregnancy, a factor closely linked to prematurity, results in the lack of a perinatal care system and a very strong social environment unfavorable, this is demonstrated by Blondel B. [18]. Indeed, the analysis of our results shows that the absence of pregnancy follow-up was frequently attributable to the low socioeconomic status of parturients, or their rural origin, given that the concept of pregnancy monitoring for these mothers was difficult to assimilate.

5. Conclusion

The low level of education, the poor follow-up of pregnancy, genitourinary infections, hypertension, pre-eclampsia, PAD, and isolated hemorrhages, are associated with an increased chance of preterm birth, while the combination of adverse socio-economic risk factors appears to have a cumulative effect on the risks of prematurity. Large retrospective and prospective studies at the national level are needed to determine the exact prevalence and other risk factors for prematurity in Morocco.

Conflicts of Interest

The authors declare no conflicts of interest.

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