The Rate of anemia and associated factors of pregnant women in rural areas in Ouezzane, Morocco

Najoua EL ASKI[1]*

[1]*Laboratory of Genetics -Neuroendocrinology-Biotechnology, Ibn Tofail University,Kenitra, Morocco.*

Email:najoua.el.eski@uit.ac.ma

Aboubaker El hessni[1]

[1]*Laboratory of Genetics -Neuroendocrinology-Biotechnology, Faculty of Sciences, Ibn Tofail University,Kenitra, Morocco.*
Email:elhessni70@yahoo.fr

Fatima OUASMANI [2]

[2] *Higher Institutes of Nursing Professions and Health Techniques Rabat*

Email:fatouasmani@hotmail.com
Rahma Erahioui[3]
[3]*Laboratory of Natural Resources and Sustainable Development, Department of Biology, Ibn Tofail* University, Kenitra, Morocco

Email:rahma.erahioui@uit.ac.ma

Ettourab Mohamed[4]

[4]*Laboratory of the provincial hospital Abu Kacem Zahraoui Ouazzane*

Mesfioui Abdelhalim[1]

[1]*Laboratory of Genetics -Neuroendocrinology-Biotechnology, Faculty of Sciences, Ibn Tofail University,Kenitra, Morocco.*

Email:a.mesfioui@yahoo.fr

Abstract

Anemia is a global public health problem affecting both developing and developed countries. According to the WHO, anemia worldwide affects 30.2% of women age of procreation and 41.8% of pregnant women.
The objective of the present study is to investigate the rate of anemia in the rural province of Ouazzane and the influence of sociodemographic parameters on its incidence,
Our study took place from 01/04/2015 to 31/05/ 2015 in five health centers with delivery unit in the rural area of Ouazzane province. The study included 120 pregnant women aged 18 to 51 years, presenting for prenatal consultation and having performed a blood count (CBC).
The average age of the women surveyed was 26.93 years. The age group 18 to 25 was the most represented (56.66%) and the anemia rate was 32%. Age, number of deliveries, dietary habits, and socioeconomic level are among the socio-demographic factors involved in the occurrence of anemia.
Anemia is a public health problem in Morocco. The evidence provided by our study underlines the need to implement educational programs to improve nutritional knowledge and awareness among women, and to focus on better management of pregnant women during pregnancy and on their postnatal follow-up in order to correct anemia before the subsequent pregnancy.

Keywords: Anemia, Pregnant women, associated factors, Rural area, Prevalence.

I. INTRODUCTION

Anemia is one of the most common problems in obstetrics, affecting both developing and developed countries. It is defined by the World Health Organization (WHO) as a hemoglobin level below 11g/dl and affects 30.2% of women age of procreation and 41.8% of pregnant women [1] and is the ultimate expression of iron deficiency which is the cause in more than 50% of cases [1, 2].
Anemia has major consequences on health as well as on economic and social development since it is a significant risk factor for maternal and especially fetal morbidity (in utero growth retardation, prematurity and perinatal mortality) [3], so these effects on the health of the individual are multiple, resulting in the adult in a decrease in physical capacity [4] and productivity [5].
In Morocco, the few surveys conducted at the national or regional level shows that anemia remains a health problem especially for women. The prevalence of iron deficiency anemia in pregnant women was 37.2% and 32.6% in women age of procreation [6].
Taking into account these complications and considering that it is an easily correctable and avoidable condition, the objective of this study was to determine the prevalence and the sociodemographic and clinical factors related to anemia in pregnant women in the rural province of Ouazzane.

II.Material and Methods:

We conducted a cross-sectional study, during the period from 01/04/2015 to 31/05/ 2015, in five health centers distributed in five communes (Terwal, Sidi Redouan, Zoumi, Ain Dorrij and Masmouda) in the rural region of Oueazzane province in Morocco. These centers were chosen because they provide more than two-thirds of the activities of the pregnancy and childbirth surveillance program. The data were collected using a structured face-to-face questionnaire. This tool was pre-tested and modified before data collection was completed. All interviews were conducted by the researcher.
Pregnant women with a blood count (CBC) who visited the five study centers for prenatal consultation or delivery were enrolled in the study after written informed consent was obtained from each patient. Patients without ablood count and patients with psychiatric disorders were excluded from the study.
The sample size was calculated based on a prevalence of 32.7 anemic pregnant women in Morocco [6] with a margin of error of ±10% and a confidence interval of 95%. The minimum sample size n=88 was obtained using the formula developed by Schwartz [7]

Women who met the inclusion criteria were enrolled in the study and a total of 120 women were enrolled.
The variables included in the data analysis were socio-demographic, socio-economic, clinical, gynecological and obstetrical history (age, gestational age, number of deliveries, number of abortions), and damage to dietary habits.
The analysis of our data was done by the software Epi-info and excel.

III. RESULTAND DISCUSSION

1. Results

Table 1: Anemia rates by sociodemographic characteristics.

Variable	Anemic women		Non-anemicwomen	
	Number	%	Number	%
Age				
18 – 25 ans	**17**	**45**	**51**	**55**
25 – 35 ans	**13**	**35**	**22**	**65**
> 35 ans	**8**	**20**	**9**	**80**
Level of education				
Illiterate				
Primary	**29**	**42**	**40**	**58**
Secondary	**91**	**9.6**	**37**	**80.4**
College	**0**	**0**	**2**	**100**
	0	**0**	**3**	**100**
marital status				
Single				
Married	**0**	**0**	**0**	**0**
	38	**32**	**82**	**68**

A total of 120 pregnant married women aged 18 to 51 were recruited. 57.5% of them were illiterate. The average age of these patients was 26.93 years. The age group of 18 to 25 years was the most represented and the most concerned (n= 68 cases or 45% of the anemic women). (Table 1).

Table 2: Anemia rates according to socio-economic level

Variable	Anemic women		Non-anemic women	
	Number	%	Number	%
Socio-economic level				
Low	**36**	**94,7**	**59**	**72**
Middle	**2**	**5,3**	**23**	**28**

Total	**38**	**32**	**82**	**68**

Almost all of our patients were of low socioeconomic status.
The comparison with women of average socioeconomic level was not significant since we had only 25 patients of average socioeconomic level.
However, it is recognized that the rate of anemia was higher in women of low socioeconomic level compared to women of average SES. (Table 2)

Table 3:Anemia rates by parity and intergenital interval

Variable	Anemic women Number %		Non-anemic women Number %	
	Parity			
Nulliparous	**9**	**21**	**35**	**79**
Primiparous	**10**	**31**	**23**	**69**
Pauciparous	**13**	**4**	**17**	**57**
multiparous	**6**	**46**	**7**	**54**
Total 38	**32**	**82**	**68**	
Intergenital interval				
1 to 2 years	**20**	**52,6**	**45**	**54,9**
2 to 4 years	**10**	**26,3**	**21**	**25,6**
over 4 years	**8**	**21,1**	**16**	**19**
Total	**38**	**31,7**	**82**	**68,3**

We noted in our series: 44 nulliparous, eitherpercentage of 36.7%, 33 primiparous, either 27.5%, 30 pauciparous, either 25% and 13 multiparous,either 10.8%.
Among nulliparous women, 9 were anemic (20.5%), among primiparous women 10 were anemic (30.3%), among pauciparous women 13 were anemic (43.3%) and finally
among multiparous women 6 were anemic (46.2%). (Table 3).

Defined as the interval between two pregnancies, the reproductive interval of our patients varied from 1 to 10 years. There were 84 women with an interval of 1 to 2 years, 20 with an interval of 2 to 4 years and 16 patients with an interval of more than 4 years. The rate of anemia in the general population was 52.6%, 26.3%, and 21.1% respectively for those in the 1 to 2 year, 2 to 4 year, and >4 year intervals. (Table 3).

2.Discussion

This study revealed that 32% of the women recruited were anemic. Our results are close to those found in the literature.
The prevalence reported in other regions of Morocco or in some developing countries show disparities [8] [9] [10]. However, it is difficult to compare these figures because of the heterogeneity of the references or methods used for hemoglobin measurement, or the health status of the women surveyed.
-The age distribution shows that anemia was more frequent in young women between 18 and 25 years of age with a percentage of 44.7%, followed by women between 25 and 35 years of age with 34.2% and finally women aged over 35 years with 21.1%.

These results are similar to those found in the literature. Indeed, several studies [11, 12, 13,14] have found a predominance of anemia in patients under 35 years of age. These results may be due to the frequency of pregnancy in this age.

-Parity is the number of previous deliveries [15] in our study multiparous women has a much higher rate of anemia, 46.2%. This was followed by pauciparous women with a percentage of 43.3%. The rate in primiparous women was less important with 30.3%, the same is true in some studies [8] [14] [16] which find that the risk increases with parity.

These results may be explained by the fact that women with multiple pregnancies have an increased susceptibility to hemorrhage and by the lack of compensation for losses and depletion of reserves recorded during previous pregnancies and breastfeeding.

-The inter-genesis spaceThe rate of anemia in the general population was 52.6%, 26.3%, and 21.1% respectively for those in the 1 to 2 year, 2 to 4 year, and >4 year intervals.

Close pregnancy is a clinical situation usually associated with several perinatal complications such as prematurity, intrauterine growth retardation (IUGR) or perinatal mortality. In most studies, these complications are increased when the interval between pregnancies is less than or equal to 6 months [17].

Some researchers do not find any clear correlation between the onset of anemia and the inter-pregnancy space [10,18,11,14].

On the other hand, they state that the nutritional needs of mothers and the outcome of pregnancy are influenced by the number of pregnancies and their interval [11].

-Iron requirements for pregnant women cannot be met by dietary sources alone [19]. Therefore, daily iron and folic acid supplements have been universally recommended [9].

Indeed In our study, 49 patients had taken systematic martial therapy as a preventive or curative measure and only 10 of them presented anemia, either percentage of 20.4%; and 71 patients had not received supplementation and 39.4% of them were anemic, either73.7% of the population of anemic women. This finding has been reported by several authors [20] [8].

-Women with a low standard of living, unaware of health problems, are likely to be the most at risk.

Especially since almost all of our patients were of low socioeconomic status, our study found that 94.7% of anemic patients were of low socioeconomic status.

Similarly, other studies have shown that the rate of anemia in women of low socioeconomic status is higher than in those of high or medium SES [8] [21].

Families with low standards of living are unable to provide the same nutrient intakes as higher-income families. Thus, low-income pregnant women are often at risk of nutritional deficiencies [11]. Also the level of education is important because it conditions the knowledge on the basic components of a balanced diet which is essential; similarly to our study several authors have proved that the low level of education is a factor significantly associated with anemia in pregnancy [22, 23, 24, 25]. Often, the level of education is related to the economic situation.Thus, even people with very limited income can afford well-balanced meals if their knowledge of nutrition is adequate [11].

IV.CONCLUSION

Pregnancy is a time of increased metabolic needs, due to the physiological changes of the pregnant woman and the needs of the fetus. Vitamins, minerals and trace elements, commonly referred to as micronutrients, are major determinants of the health of the pregnant woman and the fetus. Iron deficiency leads to anemia, which increases the risk of death from hemorrhage during delivery.

The classic approach to improving nutritional status during pregnancy is supplementation, particularly with iron and folic acid; other approaches such as food fortification or diet diversification deserve more attention. These are likely to be more beneficial in the long term than supplementation, and let's not forget the improvement in socioeconomic status that plays an important role in determining household diet.

For this reason, and in order to reduce this public health problem in Morocco, the Ministry of Health has developed a national nutritional program to combat micronutrient deficiencies, involving the fortification of flour with iron and B vitamins (thiamine, riboflavin, niacin and folic acid) and iron and folic acid supplementation for pregnant women. [26].Our data reinforce the need for a comprehensive intervention strategy to properly manage pathologies that may complicate anemia and to properly monitor parturient in the postpartum period to correct their deficiency before the next pregnancy.

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