

ORIGINAL

Incidence of anemia in pregnant women in a district hospital in Paraguay, during the year 2024

Incidencia de anemia en embarazadas de un hospital distrital de Paraguay, durante el año 2024

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ABSTRACT

Introduction: iron deficiency anemia is the most common during pregnancy, caused by a decrease in hemoglobin concentration, a decrease in hematimetric indices and producing maternal-fetal complications during pregnancy.

Objective: to determinate the incidence of anemia in pregnant women in a District hospital in Paraguay, during the year 2024.

Method: observational, descriptive cross-sectional. Through the registration of data from a district hospital in Paraguay without any type of intervention in the course of these. The sample consisted of 185 pregnant women.

Results: the majority age was 28 and 37 years (52 %), mostly from the city of Limpio (67 %) and with a secondary educational level (53 %). The educational and economic level is related to the appearance, the number of births and nutritional deficiencies can contribute to anemia, affecting fetal development. In the study, 54 % of the patients had mild anemia, and 42 % had moderate anemia, with the number of prenatal controls being a key factor in preventing complications. The absence of treatment in the mother affects fetal development, increasing the risk of premature birth. and limit the production of hemoglobin and oxygen in the maternal body.

Conclusion: it was possible to identify the sociodemographic and clinical variables of the pregnant patients such as age, marital status, origin, educational level, parity, gestational age and diagnosis method, the type of anemia was satisfactorily determined according to the trimester of pregnancy and was correlated with the number of prenatal checkups.

Keywords: Anemia; Hemoglobin; Pregnant Women; Outpatients.

RESUMEN

Introducción: la anemia por déficit de hierro es la más frecuente durante el embarazo, producido por la disminución de la concentración de hemoglobina, disminución de los índices hematimétricos y produciendo complicaciones materno-fetales durante la gestación.

Objetivo: determinar la incidencia de anemia en embarazadas de un hospital Distrital de Paraguay, durante el año 2024.

Método: observacional, descriptivo de corte transversal. Por medio del registro de datos de un hospital distrital de Paraguay sin ningún tipo de intervención en el curso de estos. La muestra está conformada por 185 embarazadas.

Resultados: la edad mayoritaria fue 28 y 37 años (52 %), en su mayoría de la ciudad de Limpio (67 %) y con nivel educativo secundario (53 %). El nivel educativo y económico se relaciona con la aparición, la cantidad de partos y las deficiencias nutricionales pueden contribuir a la anemia, afectando el desarrollo

fetal. En el estudio, el 54 % de las pacientes presentó anemia leve, y el 42 % anemia moderada, siendo el número de controles prenatales un factor clave para prevenir complicaciones la ausencia del tratamiento en la madre afecta el desarrollo fetal, aumentar el riesgo de parto prematuro y limitar la producción de hemoglobina y oxígeno en el cuerpo materno.

Conclusión: se logró identificar las variables sociodemográficas y clínicas de las pacientes embarazadas como edad, estado civil, procedencia, nivel educativo, paridad, edad gestacional y método de diagnóstico, se determinó satisfactoriamente el tipo de anemia según el trimestre de embarazo y se correlacionó con el número de controles prenatales.

Palabra claves: Anemia; Hemoglobina; Gestantes; Pacientes; Ambulatorios.

INTRODUCTION

During pregnancy, women develop anemia according to the World Health Organization, related to increased blood flow for the formation of the baby.⁽¹⁾

According to the WHO, anemia during pregnancy is defined as a hemoglobin level below 11g/dl during the first and third trimesters, and a hemoglobin level below 11g/dl during the second trimester.⁽²⁾

The most common types of anemia are megaloblastic, sickle cell, and iron deficiency.⁽²⁾

Iron deficiency anemia is the most common type, indicating a low serum ferritin level of less than 30 ng/ml. Energy demand is higher, and a lack of nutrients or excess nutrients can affect the pregnant woman. For this reason, pregnant women should attend prenatal checkups from the beginning of their pregnancy.⁽³⁾ With a low red blood cell count, the amount of oxygen in the blood decreases and vital functions cannot perform all their tasks.⁽³⁾ Iron is essential for the formation of the heme group of hemoglobin, and deficiencies that lead to the formation process are called hemoglobinopathies.⁽⁴⁾ In some cases, globin mutation may be related, with these patients having no apparent symptoms.⁽⁵⁾ A diet low in iron or vitamin B12 is another factor that causes pregnant women to develop anemia, and their condition leads to physiological hemodilution.⁽⁶⁾ Prenatal care is essential for monitoring erythrocytes and noting their values.⁽⁷⁾

The formation of blood vessels in the placenta is related to anemia and limits the amount of oxygen available to the fetus or embryo, particularly in the first trimester.⁽⁸⁾ Monitoring by a medical professional is essential to promote maternal-fetal health.⁽⁹⁾

Anemia is related to preterm birth, low birth weight, and mortality. Human erythropoietin is considered as a treatment, but its use is contraindicated in pregnant women with chronic renal failure.⁽¹⁰⁾

This research aims to determine the incidence of anemia in pregnant women at the Limpio hospital in order to prevent possible complications for the mother and fetus.

Anemia in pregnant women is a serious global problem, affecting maternal health, increasing the risk of complications, and potentially leading to the death of both the mother and the product of conception, the embryo, or the fetus.

The topic is interesting because of the way it can influence the embryo or fetus, increasing complications such as preterm birth, intrauterine growth restriction, low birth weight, and fetal development problems.

Describing the variables correctly and analyzing them will help to implement effective preventive measures in the hospital under study to determine the amount of supplies needed to optimize medical care for patients.

METHOD

The study design is observational, descriptive, cross-sectional, using clinical data records from a public hospital in Paraguay. The target population is pregnant patients over 18 years of age with anemia during the months of January to September 2024. The inclusion criteria were medical records of pregnant patients over 18 years of age with anemia who consulted for low hemoglobin levels, patients with comorbidities associated with symptoms of anemia during pregnancy, and the exclusion criteria were records of patients under 18 years of age who consulted at a public hospital in Paraguay during the aforementioned period, incomplete or blank records of pregnant patients over 18 years of age who consulted during the aforementioned period, pregnant women under 18 years of age who consulted at a public hospital in Paraguay, and patients with incomplete records with anemia.

The sampling type was non-probabilistic, the sample size was 185 pregnant patients, collected from January to August, the study site was a district hospital in Paraguay, and the instrument used was the clinical records of the gynecological emergency department of the Materno Infantil Hospital in Limpio. Permission was requested from the hospital director, and once the corresponding records were obtained, an Excel spreadsheet was created in which the data was entered according to the variables.

An analysis was performed using statistical content methods to meet the specific objectives of the study

using the Excel spreadsheet. Ethical considerations followed the ethical principles of the Declaration of Helsinki, respect for patient data, fairness to all patients equally, and the pursuit of good in researching the level of anemia, and the anonymity of participants by preserving the identity of patients, thus ensuring the confidentiality of the data collected and the integrity of the research.

RESULTS

Table 1. Sociodemographic variables of pregnant patients with anemia who consulted at the hospital in Limpio during the months of January to September 2024

	Absolute frequency	Relative frequency %
Age		
18-27 years	75	41
28-37 years	97	52
38-47 years old	13	7
Origin		
Clean	124	67 %
Assumption	9	4 %
Ambush	28	15
M. Roque Alonso	14	8
Streams and marshes	10	6
Marital status		
Married	52	28
Single	71	38
Stable union	62	34
Educational level		
Primary	70	38
Secondary	98	53
Tertiary	17	9

In relation to sociodemographic variables, the predominant age was 28 to 37 years, with 97 patients (52 % of the sample). The majority of patients came from the city of Limpio (124 patients, 67 %), and most of the patients (71,38 %) were single. The predominant educational level was complete secondary education (98 patients, 53 %).

Table 2. Variables of the clinical characteristics of pregnant patients with anemia who consulted at the Limpio hospital during the months of January to September 2024

	Absolute frequency	Relative frequency %
Parity		
1 birth	20	11
2 births	54	29
3 births	35	19
4 births	31	17
None	45	24
Gestational age		
First trimester (3-12 weeks)	12	7
Second trimester (13-24 weeks)	56	30
Third trimester (25-40 weeks)	117	63
Method of gestational age diagnosis		
FUM	113	61
ECO	72	39

In relation to clinical characteristics: 54 patients (29 %) had 2 deliveries, 31 patients (17 %) had 4 deliveries, and 45 patients (24 %) had no deliveries. The predominant gestational age was 117 patients, 63 % were in the third trimester, from week 25 to 40. The method of diagnosing pregnancy was as follows: 113 patients (61 %) by FUM and 72 patients (39 %) by ECO.

Table 3. Types of anemia according to hemoglobin level in pregnant patients who consulted at the Limpio hospital during the months of January to September 2024

Anemia values	Absolute frequency	Relative frequency %	Number of controls
Mild anemia HB 10,0 and 11,9 g/dl	101	54	6
Moderate anemia. HB 7,0 and 9,9 g/dl	77	42	4
Severe anemia. HB below 7g/dl	7	4	1

101 patients (54 %) had mild anemia with 6 prenatal checkups, 77 patients (42 %) had moderate anemia with 4 prenatal checkups, and 4 % (7 patients) had severe anemia with 1 prenatal checkup of the total sample.

Table 4. Relationship between anemia and gestational age in pregnant patients with anemia who consulted at the Limpio hospital between January and September 2024

Gestational period	Mild anemia HB 10-10,9 g/dl	%	Moderate anemia HB 7-9,9 g/dL	%	Severe anemia HB less than 7 g/dL	%
First trimester 3-12 weeks	13	7	4	2	2	1
Second Quarter 13-24 weeks	13	7	16	9	2	1
Third trimester 25-38 weeks	75	41	57	32	3	2

In the first trimester, 13 patients (7 %) had mild anemia, 4 patients (2 %) had moderate anemia, and 2 patients (1 %) had severe anemia. In the second trimester, 13 patients (7 %) had mild anemia, 16 patients (9 %) had moderate anemia, and 2 patients (1 %) had severe anemia. In the third trimester, 75 patients (41 %) had mild anemia, 57 patients (32 %) with moderate anemia, and 3 patients (2 %) with severe anemia. Most cases of mild and moderate anemia were observed in the third trimester.

DISCUSSION

Gestational anemia is a public health problem. The symptoms of pregnancy and anemia in pregnant women are similar, and sometimes the diagnosis of anemia is delayed due to these circumstances, increasing cases of morbidity and infant mortality. The findings of this research coincide with other similar studies on anemia in pregnant women at the regional level.⁽¹¹⁾

The predominant age was 28 to 37 years (52 %), with 124 patients (67 %) from the city of Limpio. Seventy-one patients (38 %) were single. In terms of educational level, 98 patients (53 %) had completed secondary school and were single.

Age is a key issue in this research. The majority of patients were between 28 and 37 years old, which is the fertile age range with multiple births, negatively affecting iron stores in pregnant women. Another related factor is the number of births in the population. Early diagnosis of anemia helps to reduce its effects.⁽¹²⁾ The number of unmarried patients compared to other studies could be related to nutritional deficiency.

It is important to diagnose anemia early in order to make an effective diagnosis. The population of women of reproductive age with anemia is increasing, and sometimes educational and economic levels are associated factors.⁽¹²⁾

Clinical characteristics: 54 patients (29 %) had given birth twice, 31 patients (17 %) had given birth four times, and 45 patients had not yet given birth. The gestational age of the study participants was as follows: 117 patients (63 %) were in their third trimester, weeks 25 to 40, 113 patients were diagnosed by last menstrual period (LMP) and 72 patients (39 %) by ultrasound.

The number of pregnancies, birth weight, and growth during childhood and adolescence of pregnant women

influence the development of a type of anemia. The number of births and nutritional deficiencies contribute to anemia and limit the development and health of the embryo or fetus.⁽¹³⁾

In Table 3, 101 patients (54 % of the population) had mild anemia with 6 prenatal checkups, 77 patients (42 % of the sample) had moderate anemia with 4 prenatal checkups, and 7 patients (4 %) had severe anemia with only one consultation.

The origin of anemia is multifactorial, associated with sociodemographic causes, gestational factors, and progestational elements.⁽¹⁴⁾

Compared to other studies, patients with fewer prenatal visits present with higher degrees of iron deficiency anemia. More than 6 prenatal checkups reduce anemia, increase iron and hemoglobin levels, and help prevent complications related to anemia during pregnancy.⁽¹⁴⁾

The lack of treatment for pregnant women with anemia is a cause for public health concern, affecting fetal development and weight, increasing the risk of preterm delivery, and iron deficiency affects hemoglobin production and oxygen levels.⁽¹⁵⁾

The limitations of the study are due to the population studied, which represents only a portion of the region. The Ministry of Health should monitor the nutritional status of patients and carry out campaigns related to healthy eating. Low nutrient levels are important to replace. Other limitations could be the lack of data on patients' diets or their complete medical history, which could be key to timely treatment.⁽¹⁶⁾ Vulnerable groups are the most affected. The beginning of pregnancy is critical, and the most common maternal complications are anemia, gestational diabetes, and hypertension.⁽¹⁶⁾

Many studies claim that premature birth and maternal anemia are related.⁽¹⁷⁾ From the sixth week of pregnancy, physiological changes in hemoglobin levels are related to hemodilution, with an increase in the need for iron to replenish basal losses, as well as an increase in red blood cell mass to meet the needs of the placenta and fetal growth.⁽¹⁸⁾ It would be interesting to conduct the same study in other populations to obtain more relevant data for developing public prevention policies involving iron supplementation, balanced diets, and micronutrients in women of childbearing age, and to create follow-up programs for pregnant women so they can complete their prenatal checkups.

CONCLUSION

We were able to successfully determine the sociodemographic variables of pregnant patients with anemia who consulted between January and September 2024. These included age, marital status, origin, and educational level, describing clinical characteristics such as parity, gestational age, and diagnostic method.

The type of anemia was identified according to the trimester and the type of anemia according to the trimester was related to the number of prenatal checkups.

The limitations of the study could be the lack of patient diversity, as the majority of the population comes from the same geographical region.

The number of prenatal checkups could vary the level of anemia, depending on the treatment provided by the specialist.

It would be interesting to conduct a longer study to include the patients' diet and family history, which would be important factors.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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