e-ISSN: 0975-5160, p-ISSN: 2820-2651

Available online on www.ijtpr.com

International Journal of Toxicological and Pharmacological Research 2022; 12(6); 231-235

Original Research Article

An Institutional Experience with Mother Thrombo-Cytopenia and Anaemia in Expectant Females

Ravi Kumar Gupta[1], ILA Agrawal[2]

[1]Associate Professor, Department of Obstetrics & Gynaecology, Krishna Mohan Medical College & Hospital, Pali Dungra, Sonkh Road, Mathura

[2]Assistant Professor, Department of Obstetrics & Gynaecology, Krishna Mohan Medical College & Hospital, Pali Dungra, Sonkh Road, Mathura

Received: 15-04-2022 / Revised: 18-05-2022 / Accepted: 28-05-2022

Corresponding author: Dr ILA Agrawal

Conflict of interest: Nil

Abstract

Background: Expectant females should be given careful attention and treated as soon as feasible for thrombo-cytopenia and anaemia since these conditions are a significant contributor to mother and peri-natal morbidity and mortality.

Aims and Objectives: Therefore, the purpose of the current research was to identify the frequency of anaemia and gestational thrombo-cytopenia in expectant females.

Materials and Methods: This research, which included 220 expectant patients who visited the department of obstetrics and gynecology's outpatient clinic and hospital wards over the course of nine months, was cross-sectional in nature. To assess platelet and hemoglobin levels, a blood sample was drawn at random for peripheral blood film and hemoglobin count.

Results: The average age of females who were expectant was 24.29 ± 3.33 years. The majority of the research participants are from rural areas, are working professionals, and are in their second tri-mester of gestation. In this research, anaemia and thrombo-cytopenia were found to be prevalent at rates of 67% and 19%, respectively.

Conclusion: Prenatal care must include screening for platelet and hemoglobin count, health education, and dietary assessment since thrombo-cytopenia and anaemia are serious warning signs for both the mother and the unborn child.

Keywords: Anaemia; Thrombo-cytopenia; Gestation platelet and haemoglobin.

Introduction

Megakaryocytes in the bone marrow produce non-nucleated platelets, which can survive up to 10 days in the peripheral circulation. In the haemostatic system, platelets are essential initiators [1]. It is generally known that, after anaemia, thrombo-cytopenia is one of the most significant hematologic abnormalities during gestation [2]. Preeclampsia, gestational thrombo-cytopenia, and idiopathic thrombocytopenic purpura are just a few of the diverse conditions that can cause thrombo-cytopenia [3]. Other causes include illnesses like leukemia and aplastic anaemia, which may cause significant morbidity and

mortality, as well as infections like malaria or a folate shortage as well as diseases like leukemia. It is believed that gestational thrombo-cytopenia is just a mild amplification of the typical decrease in blood platelets that frequently happens during gestation [4]. Expectant females with thrombo-cytopenia are more likely to experience severe bleeding during or after delivery, especially if they require a cesarean section or other type of medical procedure during gestation or labor [5].

When the platelet count is below the usual range, such bleeding issues are more frequent. Gestation anaemia was acknowledged as having negative effects on the mother and as a significant public health issue in India that contributed to low birth weight and high infant mortality [6].

Hemoglobin levels in iron-supplemented females below the fifth percentile of a tri-mester-specific hemoglobin reference level are considered anaemia. There are several factors that might contribute to anaemia during gestation, including nutritional deficits in iron, folate, and vitamin B12 as well as parasite conditions like intestinal parasitic infections and malaria [7]. Although severe thrombo-cytopenia has only been documented in a few numbers of instances, iron deficiency anaemia is frequently linked to thrombocytosis. Anaemia and thrombo-cytopenia during gestation have led to needless, frequently invasive, further testing as well as cesarean deliveries. Although the exact cause of gestational thrombocytopaenia is unknown, it is possible that increased platelet volume and rapid platelet consumption are contributing factors [8].

Aims and Objectives: The purpose of this research was to identify the frequency of anaemia and gestational thrombo-cytopenia in expectant females who attended our tertiary healthcare facility for antenatal care.

Material and Methods

Subjects: In this cross-sectional research, 220 expectant females who had visited the outpatient clinic and hospital wards of the department of obstetrics and gynecology over a nine-month period. The institutional ethical committee gave its approval to this investigation. Forms for properly signed informed consent were obtained from each participant throughout the investigation. Every person who participated in the research underwent a thorough medical examination and comprehensive history according to a pre-established proforma.

The following criteria precluded expectant females from participating in the research: Bleeding problems, aspirin-using females, splenomegaly, connective tissue diseases such SLE, hypertension, HIV infection, and hepatitis B infection. From the clinical notes, details such as drug use history, the presence of splenomegaly, and HIV/hepatitis B status were taken.

Specimen: Each expectant woman had a total of 3 ml of blood drawn (randomly) for a complete blood count and a peripheral blood film. An automated haematology analyzer, the BeneSphera H33s, was used to calculate the whole blood count. The Drabkin and Austin method was used to estimate the amount of hemoglobin in the blood (1932).

Every day, three distinct manufacturer-provided samples with known cell counts were analyzed to determine quality control. If a expectant woman's hemoglobin level was below 11 g/dl, she was deemed anemic. Anaemia severity was determined as follows: mild if Hb was between 9.0 and 10.9 g/dl; moderate if between 7.0 and 8.9 g/dl; and severe if below 7.0 g/dl.

When a expectant woman's platelet count is less 150 109/L, thrombo-cytopenia is stated to be present. Platelet counts between 100 and 150 109/L are regarded as mild thrombo-cytopenia, levels between 50 and 100 109/L as moderate thrombo-cytopenia, and levels below 50 109/L as severe thrombo-cytopenia.

Statistical Analysis

The SPSS Package version was used to do the data analysis. To determine the relationship between two groups, simple proportions, mean, standard deviation, Student "t" test, and Chi-square test were utilized. Statistical significance is defined as a P value of less than 0.05.

Results

The majority of expectant females in this research (71% of whom were between the ages of 31 and 40), 21% of whom were between the ages of 21 and 30, and the remaining 10% were over the age of 40. The research's participants were 24.29 (plus or minus 3.33 years) old on average. 65% of the research's participants resided in rural areas. 68% of the research's participants were housewives, while 42% had day jobs. 58% of the research participants were illiterate. According to the woman's gestational age, 47% of them were in the second tri-mester. (Table 1)

Table 1: Socio-demographic characteristics of expectant females (N = 220)

Variables		Thrombo-cytopenia (%)	Anaemic (%)
Age group (years)	21– 30	21	19
	31–40	78	71
	≥ 40	11	10
Occupation	Housewife	68	61
	Employed	42	38
Educational status	Illiterate	58	47
	Literate	52	43
Residence	Rural	65	59
	Urban	45	51
Tri-mester	1st tri-mester	42	43
	2nd tri-mester	47	43
	3rd tri-mester	21	19

In this investigation, 148 expectant females (67%) were found to have anaemia; the remaining 72 (33%) females had RBC counts that were within the normal range. The frequency of anaemia among the 148 anemic expectant females in this research was mild in 56%, moderate in 33%, and severe in 11%. Figure 1.

In this research, the frequency of thrombo-cytopenia was identified in 21 females (19%), whereas the remaining 89 females (81%) had platelet counts that were within the normal range. In this research, 21 expectant females with thrombo-cytopenia ranged in severity from mild (67%), moderate (25%), to severe (7%). Figure 2.

Table 2: Socio-demographic factors associated with Thrombo-cytopenia and anaemia in gestation

Variables		Thrombo-cytopenia (%)	Anaemic (%)
Age group (years)	21– 30	6 (14)	28 (19)
	31–40	32 (76)	108 (73)
	≥ 40	4 (10)	12 (8)
Occupation	Housewife	30 (71)	110 (74)
	Employed	12 (29)	38 (26)
Educational status	Illiterate	24 (57)	108 (73)

	Literate	18 (43)	40 (27)
Residence	Rural	20 (48)	124 (84)
	Urban	22 (52)	24 (16)
Tri-mester	1st tri-mester	28 (67)	112 (76)
	2nd tri-mester	10 (24)	24 (16)
	3rd tri-mester	4 (10)	12 (8)

Females between the ages of 31 and 40 had greater rates of anaemia (73%) and thrombo-cytopenia (76%) than females in other age groups; however, this difference was not statistically significant. Females with work had lower rates of anaemia (26%) and thrombo-cytopenia (29%) than females without employment. In addition to gestational age, education, and residency, anaemia throughout gestation was examined. The majority of expectant females with anaemia and thrombo-cytopenia in the first tri-mester came from rural areas (Table 2).

Discussion

In India, thrombo-cytopenia and anaemia during gestation have been identified as a significant public health issue that can result in a number of physiological or pathologic disorders, some of which are specific to gestation and cause high rates of mother morbidity and mortality. After anaemia in gestation, it is the second most prevalent hematologic disease [9]. Gestation-related thrombo-cytopenia increases a woman's propensity to bleed; postpartum hemorrhage is a significant contributor to mother mortality. This research was done to find out how common thrombo-cytopenia and anaemia were among expectant patients at our hospital. The frequency of anaemia and thrombo-cytopenia, respectively, was 19% and 67% among expectant females in this research.

Which was almost comparable to the results of investigations conducted by earlier studies. Anaemia during gestation is caused by a variety of factors in underdeveloped nations, including nutritional deficits in iron, folate, and vitamin B12 as well as parasite illnesses like malaria and intestinal parasitic infections [10]. The proportional importance of each of these factors in causing anaemia during gestation varies considerably depending on the region, the time of year, and dietary habits. The majority of expectant females in this research, with a mean age of 24.29 years, were between the ages of 31 and 40. Based on our research, gestational thrombo-cytopenia affected all three tri-mesters. In the first tri-mester, no cases of severe thrombo-cytopenia were observed. The research found that the majority of thrombo-cytopenia cases (47%) occurred during the second tri-mester of gestation.

This was in line with Pandey and Singh's research, which said that the late second tri-mester is when gestational thrombo-cytopenia in gestation typically develops. According to various research, education lowers the risk of anaemia [11]. When compared to their counterparts, females with education had a lower likelihood of becoming anemic. Expectant females with higher levels of education have better incomes and consume nutrient-rich foods, preventing nutritional anaemia. 58% of the research participants were illiterate. These findings are consistent with previous research that found a greater frequency of anaemia among expectant mothers without a high school diploma [12]. Numerous other positive mother and child outcomes had been linked to secondary and higher education. In line with earlier studies, this research found a substantial relationship between anaemia and living in a rural area.

Conclusion

In conclusion, thrombo-cytopenia and anaemia are the major issues that affect

expectant females. Expectant females should be screened for platelet and hemoglobin count and given health education and nutrition assessments during antenatal care because the expectant females in the current research were from a rural area, were illiterate, and were housewives. Therefore, thrombo-cytopenia and anaemia are important warning signs for both the mother and the unborn child and require immediate attention.

References

1. Katke RD, Gohil DP. Thrombo-cytopenia during gestation: institutional based research. Int J Reprod Contracept Obstet Gynecol. 2014;3(4):947-51.
2. Cines DB, Levine LD. Thrombo-cytopenia in gestation. Hematology 2014, the American Society of Hematology Education Program Book. 2017 Dec 8;2017(1):144-51.
3. Gauer R, Braun MM. Thrombo-cytopenia. American family physician. 2012 Mar 15;85(6):612-22.
4. Arnold DM. Bleeding complications in immune thrombo-cytopenia. Hematology 2014, the American Society of Hematology Education Program Book. 2015 Dec 5;2015(1):237-42.
5. Sifakis S, Pharmakides G. Anaemia in gestation. Annals of the New York Academy of Sciences. 2000 Apr;900(1):125-36.
6. Allen LH. Anaemia and iron deficiency: effects on gestation outcome. The American journal of clinical nutrition. 2000 May 1;71(5):1280S-4S.
7. Pandey A, Singh R. Thrombo-cytopenia during gestation: institutional based prospective research of one year. International Journal of Research in Medical Sciences. 2017 Aug;5(8):3502.
8. Steer PJ. Mother hemoglobin concentration and birth weight. The American journal of clinical nutrition. 2000 May 1;71(5):1285S-7S.
9. Asrie F, Enawgaw B, Getaneh Z. Frequency of thrombo-cytopenia among expectant females attending antenatal care service at Gondar University Teaching Hospital in 2014, northwest Ethiopia. Journal of blood medicine. 2017; 8:61.
10. Vieth JT, Lane DR. Anaemia. Emergency Medicine Clinics. 2014 Aug 1;32(3):613-28.
11. Melku M, Addis Z, Alem M, Enawgaw B. Frequency and predictors of mother anaemia during gestation in Gondar, Northwest Ethiopia: institutional based cross-sectional research. Anaemia. 2014 Oct;2014.
12. Adam I, Khamis AH, Elbashir MI. Frequency and risk factors for anaemia in expectant females of eastern Sudan. Transactions of the Royal Society of Tropical Medicine and Hygiene. 2005 Oct 1;99(10):739-43.