INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

EVALUATION OF CORRELATION FACTORS FOR PREVALENCE OF ANEMIA AND UTILIZATION OF HEMATINICS AMONG PREGNANT AND LACTATING WOMEN

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ABSTRACT: Anemia is defined as a decreased hemoglobin level or circulating red blood cells, and it is the most common hematological disorder during pregnancy. The study was aimed to review the prevalence of anemia in pregnant and lactating women and to find out the correlation between educational status and prevalence of anemia if any. A Concurrent Observational study was carried out Using a Case Sheet of the In-patient and Out-Patient of Parul Sevasharam Hospital during a period of six months. Among 115 women, the majority of anemic women were in the age of 21-25 years. The present study showed that the prevalence of moderate anemia (42.60%) among pregnant and lactating women was high. The lower socio economic status (64.35%), low level of education were associated for high prevalence of anemia, and the majority of antenatal women were primigravida (37.39%) and were in the third trimester (77.39%) of pregnancy. The majority of women took iron supplements (42.31%) during pregnancy; all the hematinics (41.53%) were prescribed in oral route. Study suggests an association of socioeconomic status and education in prevalence of anemia. Majorly women with primigravida and in the third trimester were found to be anemic. The iron supplement was prescribed highest among all hematinics. Proper education and inclusion of foods rich in hematinics can reduce the risk of anemia in pregnant women. Prescription by generic name was more compare to brand name and nearly all drugs were prescribed from NLEM. The majority of women took iron supplements during pregnancy.

INTRODUCTION: According to WHO, haemo-globin level below 11 gm/dl in the first trimester, below 10.5 gm/dl in the second and third trimester and below 10 gm/dl in the postpartum period would be defined as anemia [1, 2]. Anemia during pregnancy is more risk for premature birth and increases by three-fold the risk for low birth weight and maternal mortality [3].

Many studies found that lower socioeconomic status leads to a higher prevalence of anemia among pregnant women [4]. The severity of anemia was also found to be inversely related to educational status. The women who are poorly educated might suffer from the deleterious effect of poor nutrition [4]. Vit B_{12} anemia caused by a lack of intrinsic factor resulting in a lack of absorption of vitamin B_{12} is rare during pregnancy as it usually causes infertility [5].

This study was designed as a concurrent observational study to determine the prevalence of anemia and observe the drug utilization pattern of hematinics in pregnant and lactating women. The study's objective was to review prevalence of

anemia in pregnant and lactating women and categorized patients based on the severity of anemia. It was also aimed to assess drug utilization Patterns of hematinic and to find out the correlation between educational status and prevalence of anemia, if any.

MATERIALS AND METHODS:

Duration of Study: The study was conducted for a period of six months (Sept. 2018 to Feb. 2019).

Study Type: A Concurrent Observational study.

Study Site: Parul Sevasharam Hospital, Limda, Vadodara, Gujarat, India.

Sample Size: Sample was calculated using Raosoft sample size calculator with a margin of error 5%, confidence level 95%, and response distribution 50%.

Source of Data: The data about the patients was collected by visiting the in-patient and out-patient department in a tertiary care teaching hospital in a specially designed data collection form.

RESULTS AND DISCUSSION:

Results: During the six months of the study period, a total of 115 pregnant patients from the department of OB & G were enrolled as per inclusion and exclusion criteria, out of which 113 women were pregnant, and 2 were a lactating mother. Among all the 115 participants, 60% (69) had received out-patient care, and 40% (46) had received in-patient care. Out of 115 women, 20.00% (23) were between the ages of 18-20, 45.22% (52) were between 21-25 years of age, 27.83% (32) were between 26-30 years, 6.95% (8) were between the ages of 31-35. From the above data, it can be seen that women of ages between 21-25 years of age were higher in this study with a mean of 23.5 and SD of 4.21 **Table 1.1.**

In this study, 5.22% (6) women belonged to the first trimester, 15.65% (18) to the second trimester, 77.39% (89) to third trimesters, 1.74% (2) belonged to the lactation category with a mean of 6.79 and SD of 2.64 **Table 1.2** Patients obstetric history showed that 37.39% (43) were primigravida, 31.30% (36) were the second gravida, 21.74% (25) were the third gravida, 7.83% (9) were the fourth gravida, 0.87% (1) was fifth gravida, 0.87% (1)

was the sixth gravida with mean of 19.16 and SD of 14.34 **Table 1.3**. Higher prevalence of anemia was seen among the women with education up to middle school 53.91% (62) and among primary educated pregnant women was 20.87% (24), Higher educated pregnant women was 15.65% (18), Graduate pregnant women were 3.48% (4), Illiterate pregnant women was 6.09% (7) with mean of 2.3 and SD of 18.81 **Table 1.4.**

As far as the socioeconomic status of the pregnant women was concerned, it was seen that about 0% (0) in class 1, 3.48% (4) in class 2, 16.52% (19) in class 3, 64.35% (74) in class 4, 15.65% (18) in class 5 were anemic in socioeconomic groups individually with mean of 23 and SD of 30.71 **Table 1.5.**

TABLE 1: CORRELATION FACTORS

| 1.1: Age Distribution		
Age (years)	Number	Percentage (%)
18-20	23	20.00
21-25	52	45.22
26-30	32	27.83
31-35	8	6.95
Total	**115**	**100.00**
1.2: Prevalence Based on Trimester		
Trimester	Total Number	Percentage (%)
First	6	5.22
Second	18	15.65
Third	89	77.39
lactation	2	1.74
Total	**115**	**100.00**
1.3: Prevalence Based on Pregnancy Status		
Pregnancy Status	Total Number	Percentage (%)
PrimiGravida	43	37.39
Secondary Gravida	36	31.30
Third Gravida	25	21.74
Fourth Gravida	9	7.83
Fifth Gravida	1	0.87
Sixth Gravida	1	0.87
Total	**115**	**100.00**
1.4: Prevalence Based on Educational Status		
Education	Number	Percentage (%)
Primary school	24	20.87
Middle school	62	53.91
High school	18	15.65
Graduate	4	3.48
Illiterate	7	6.09
Total	**115**	**100.00**
1.5: Prevalence Based on Socio-economic Status [14]		
Socio-economic class	Number	Percentage (%)
Class-1	0	0.00
Class-2	4	3.48
Class-3	19	16.52
Class-4	74	64.35
Class-5	18	15.65
Total	**115**	**100.00**
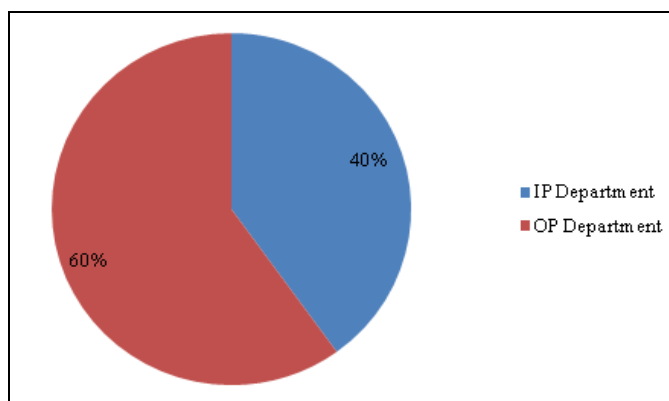
FIG. 1: IN-OUT PATIENT
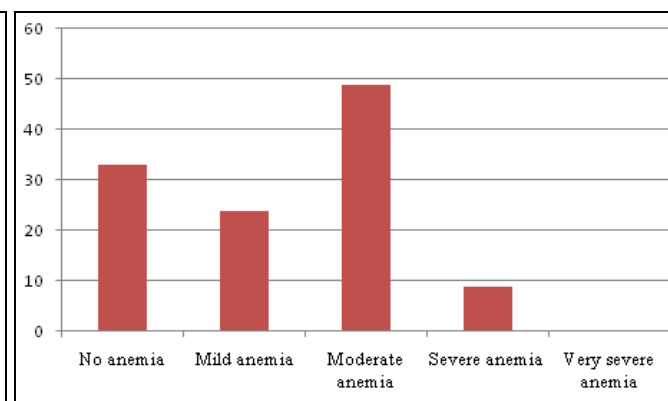
FIG. 2: PREVALENCE BASED ON SEVERITY OF ANEMIA

According to ICMR classification of anemia, 20.87% (24) women had mild anemia, 42.60% (49) women had moderate anemia, 7.83% (9) women had severe anemia, 0% (0) women had very severe anemia, and 28.70% (33) women were non-anemic.

Total 313 drugs were prescribed to the pregnant and lactating women; out of these, 130 (41.53%) hematinics and 183 (58.47%) Non-haematinics drugs were prescribed.

Total 130 Prescription analyses showed that 93.85% (122) were given oral hematinics preparations and 6.15% (8) given I.V. hematinics injections.

Out of 130 drugs prescribed to pregnant women, the higher number of drugs, 82.31% (107) were prescribed in generic name, and 17.69% (23) were prescribed in the brand name. Out of these 130 medicines prescribed, the Folic acid 35.38% (46) and Iron 42.31% (55) were consistently remaining the most frequently prescribed in our studies. 17.69% (23) Tonofolic and 4.62% (6) MVBC were prescribed. Total 313 numbers of drugs prescribed in this study, in which all the drugs (100%) were from the NLEM.
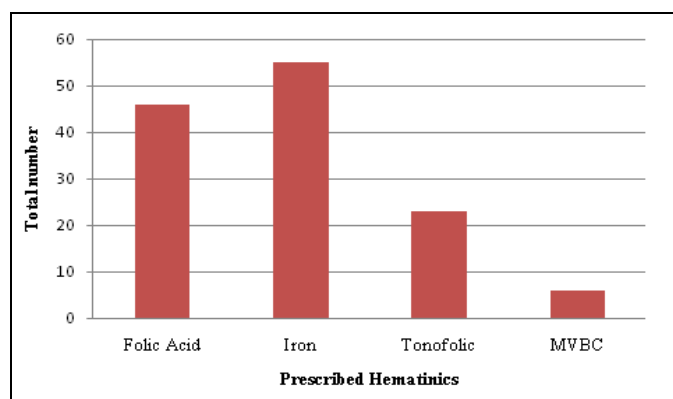

FIG. 3: PRESCRIBED DRUGS

DISCUSSION: The findings of this study showed that the majority (44%) of the anemic pregnant women were in the age group of 21-25 years. The average maternal age obtains in this study was similar to the study by Binu K. M. *et al.,* at Raichur [6]. Greater than half of the women visited antenatal OPD (60%) than IPD (40%) in this study. The present study documented that the proportion of women experiencing anemia increased with the increase in a trimester. In this study, women in the 3rd trimester (77.39%) showed a higher prevalence.

This is similar to the study conducted by Basavaraj Bhandare *et al.* at Raja Rajeswari Medical College & Hospital 4 and the study by Shailesh Yadav *et al.* [70]. In this study, patient's obstetric history showed that (37.39%) women were primigravida.

Similar observation was made in the study conducted by Anup Gopinath *et al.,* [51] and Befikadua Zikarias *et al.* [8]. This study observed that majority of pregnant women were literate. This was an encouraging finding, as it can make them understand the difficulty of the therapy and the benefits gained, which was similar to study done by S.R. Gawde *et al.,* [9] study by Darshan Bhagwan *et al.* [10]

According to B.G. Prasad's Socioeconomic status classification, women (64.35%) belonged to Class-4 [Lower middle class] were higher in this study, which was different from the study by Anup Gopinath *et al.* [11] In this study, 115 women were observed, the majority had (42.60%) moderate anemia with the mean Hb level 7-10 gm/dl. The results of the study are similar to Sathya P. *et al.,* conducted in an urban area in Coimbatore district [12] and a study by Shridevi at Maheshwara medical college and hospital, Telangana [13].

Hematinics constituted over 41.53% of all the medicines and consistently remaining the most frequently prescribed.

CONCLUSION: It was concluded from the study that the prevalence of anemia among pregnant women in the Parul Sevashram hospital was relatively high. The study suggests an association of socioeconomic status and education in the prevalence of anemia. Majorly women with primigravida and in the third trimester were found to be anemic. The prevalence of moderate anemia among pregnant and lactating women was high.

The iron supplement was prescribed highest among all hematinics. All the drugs were prescribed from NLEM. Proper education and inclusion of foods rich in hematinics can reduce the risk of anemia in pregnant and lactating women to avoid fatal maternal outcomes.

Limitation of the Study: The duration of the study is only for a period of six months. If the study is extended for the longer time period, it can permit to check the association between anemia and foetal development or foetal outcome with the geographical association as a multi centric study.

Author Contributions: All authors were responsible for study design, acquisition of data, data analysis, interpretation, and writing and editing the manuscript. All authors have read and approved the manuscript.

Ethics Approval: The ethics approval was obtained from Parul University Institutional Ethics Committee for Human Research (Pu-Iechr) With Approval Number Puiechr/Pimsr/00/081734/1803.

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