https://doi.org/10.33472/AFJBS.6.5.2024. 2700-2708

AfricanJournalofBiological Sciences

PROFILE OF ANAEMIA IN PATIENTS ATTENDING OUT PATIENT DEPARTMENT OF TERTIARY CARE CENTRE OF SOUTH INDIA: A CROSS SECTIONAL STUDY

First and Corresponding Author
HaribhaskarR .RamMurugan.[1]*,
Resident Department of Pathology ,Tertiary care centre Saveetha Nagar, Thandalam, , Chennai, Tamil Nadu
Secobd Author
DharanideviS.Santhakumar[2],
Resident Department of Pathology ,Tertiary care centre Saveetha Nagar, T handalam, , Chennai, Tamil Nadu
Third Author
SontiSulochana[3]
Professor, Department of Pathology ,Tertiary care centreSaveetha Nagar, Thandalam, , Chennai, Tamil Nadu

***Corresponding author:**
Dr.Haribhaskar R .RamMurugan.[1]Resident , Department of Pathology ,Tertiary care centreSaveetha Nagar, Thandalam, , Chennai, Tamil Nadu .

Article History
Volume 6, Issue 5, 2024
Received: 01 May 2024
Accepted: 09 May 2024
doi:*10.33472/AFJBS.6.5.2024. 2700-2708*

ABSTRACT

Background: Nearly 2 billion people in the world are suffering from anaemia. Anaemia is the major contributor for the morbidity in India. Through this study we wanted to study the patterns of anaemia among those who are attending the Out Patient Department (OPD) of a tertiary care centre. Based on this our aim is to study socio demographic factors associated with the patients of anaemia attending the Out Patient Department (OPD) of a tertiary care centre and also to describe different haematological indicators and patterns of anaemia in patients attending the Out Patient Department (OPD) of a tertiary care centre

Methods: It was a cross sectional observational study conducted in tertiary care centre of Tamil Nadu between March 2021 to August 2021. The basic socio demographic data was collected by interview method. Haematological indicators like Packed Cell Volume (PCV), Red blood cells (RBC) count, Mean Corpuscular Volume (MCV), Mean Haematocrit Concentration, Platelet count, Total Count (TC) were assessed for each patient. Descriptive statistics and chi square test as test of significance were used. Statistical software Epi Info software version 7.2.5 was used for the statistical analysis

Results: There were total of 98 participants. Majority of them were females (67.3%) Haemoglobin levels were between 4.4 %to 8.7 % and mean Hb level was 6.9 %. Majority of them (65.3 %) 64 of the participants had moderate anaemia followed by severe anaemia.

Conclusion: Moderate anaemia was the most common presentation. Easy fatigability, breathlessness on exertion, and light headedness were most common symptoms. Iron deficiency anaemia is the most common aetiologies. Educational status and age had correlation with severity of anaemia

Keywords: Anaemia, Tertiary care Centre, India, red blood cell indices

INTRODUCTION

Anaemia is a condition in which the number of red blood cells or the haemoglobinconcentration within them is lower than normal[1].Anemia affects the well-being, reduces the work capacity in affected individuals[2].

Anaemia is one of the important global health issueaffecting children, adolescent girls and women in their reproductive age group. According to WHO, 40% of children 6–59 months of age, 37% of pregnant women, and 30% of women in their reproductive age group in the worldsuffer from anaemia[1]. Nearly 2 billion people in the world are suffering from anaemia[3]. Anaemia is the major contributor for the morbidity in India[4]. According to NFHS -5 (2019-21) reports 67% of children between the age group of 6 months to 59 months, 57% of women are anaemic[5]. Government of India has taken many initiatives over the years including Anaemia Mukta Bharath Abhiyan (AMBA)which was launched in 2018.In spite of the serious efforts the situation is still the same. Through this study we wanted to study the patterns of anaemia among those who are attending the Out Patient Department(OPD) of a tertiary care centre.

Based on this our aim is to study socio demographic factors associated with the patients of anaemia attending the Out Patient Department of a tertiary care centre and also to describe different haematological indicators and patterns of anaemia.

METHODS

It was a cross-sectional observational study done amongst adults attending OPD of atertiary care centrein Tamil Nadu betweenOctober 2022 to June 2023and..The Purposive sampling was done and data was collected for 6 months duration fromJanuary 2023 to June 2023

The basic socio demographic information such as age, sex, place of residence, religion, socio economic status, education was collected using a structured questionnaire and data was collected by interview method. Haematologicalindicators like Packed Cell Volume (PCV), Red blood cells (RBC)count, Mean Corpuscular Volume (MCV), Mean Haematocrit Concentration,Platelet count, Total Count (TC) were assessed for each patient. Hb was assessed using 6 part analyser

Anaemia was defined as Hb level ofless than 13g/dl for males and 12g/dl for females. MCV defines the size of the red blood cells and is expressed as femtoliters or as cubic microns. The normal values for MCV are 87 ± 7 fl.MCH quantifies the amount of haemoglobin per red b lood cell. The normal value is 29 ± 2 picograms per cell.MCHC indicates the amount of haemoglobin per unit volume. In contrast to MCH, MCHC correlates the haemoglobin

content with the volume of the cell. It is expressed as g/dl of red blood cells or as a percentage value. The normal values for MCHC are 34 ± 2 g/dl.[7]Normal platelet value 1.5 Lakhs to 4.5 Lakhs /cumm.

For peripheral smear the slide is selected with 75× 22 mm length and thickness of about 1 mm. A spreader slide is taken selecting the glass slide with one end smooth and width of size 18 mm. One drop of blood is placed in centre 1 cm away from end. Slide is placed over the drop at an angle of 30 degree to the slide. Spreading a drop of blood onto a glass plate, turning the drop into a thin film. Then, they examine the sample under a microscope.Romanowsky staining and Leishman's staining was done.

Data collected was entered on MS Excel spread sheet. Descriptive statistics andchi squaretest as test of significance were used. P value less than 0.05 was taken as statistically significant. Statistical software SPSS Version 24.0 was used for the statistical analysis

RESULTS:

Socio demographic features:

There were total of 98 participants. Majority of them were females (67.3%) and from rural back ground (69.4%). More than half of them were between the age group of 20 -40 years (50.3%) with mean age of 38 .1 years. Most of the participants were literate (98%) and most of them (36.7%) had studied up to middle school.Socio demographic details of the participants under the study is given in Table 1.

Table -1 Socio Demographic Details of The Participants Under the study

Sl no	Socio -Demographic Variable		Number	Percentage
1	Sex	Female	66	67.3
		Male	32	32.7
2	Residence	Rural	68	69.4
		Urban	30	30.6
3	Educational status	Degree	20	20.4
		Diploma	10	10.2
		High school	30	30.6
		Middle school	36	36.7
		Illiterate	2	2
4	Age	Less than 20	6	6.1
		21 to 40	52	53.1
		More than 41	46	46.9

Haemoglobin levels were between 4.4 %to 8.7 % and mean Hb level was 6.9 %. Majority of them (65.3%) 64 of the participants had moderate anaemia followed by severe anaemia. Mean values were Packed cell volume 24.1 %, MCHC 29.25 g/dl, MCV 78.65 fl, MCH 23.21pg., platelet count 2.59 Lakhs, total count 1.07 thousand. Around 10% of the participants had RBC count of less than 2 million cells per litre given in Table 2

Table - 2 Showing RBC Indices of Participants Under the Study

Sl. No	RBC index	Mean	Maximum	Minimum
1	Hb (g%)	6.953	8.7	4.4
2	PCV (%)	24.1	31.4	12.5
3	RBC (cells /litre)	3.16	4.78	1.50
4	MCV (fl)	78.65	105	54
5	MCHC(g/dl)	29.25	35.2	25
6	MCH (pg)	23.2	31.9	13.5
7	TC (cells/cumm)	1.07	23980	3290

Microcytic anaemia was seen among 73 of the participants (74.5%) followed by 14 participants who had macrocytic anaemia (14.2%) as seen in peripheral smear shown in Table 3.

Table 3 showing severity of anemia and type of anemia

Sl.no	Variable		Number (%)
	Severity of anaemia	Moderate degree (7-9g/dl)	64 (65.3)
		Severe degree (< 7g/dl)	34(34.7)
	Type of anaemia on peripheral smear finding	Microcytic anaemia	73(74.5)
		Macrocytic anaemia	14(14.2)
		Dimorphic anaemia	11(11.2)

There was significant association found between severity of anaemia and sex of the participants, educational levels under the study as well as the age group of the participants under the study as shown in the Table 4.

Table 4: Showing association of demographic variables with the severity of Anaemia

Variable		Haemoglobin level			Pearson chi square value (‘p’ value)
		≤ 7	>7	Total	
Sex	Male	6	26	32	9.578(0.002)
	Female	34	32	66	
Residence	Rural	26	42	68	0.613(0.434)
	Urban	14	16	30	
Educational status	Degree	2	18	20	15.759(0.003)
	Diploma	2	8	10	
	High school	16	14	30	
	Illiterate	2	0	2	
	Middle school	18	18	36	
Age group	<20	4	2	6	7.618(0.022)
	21-40	26	26	52	
	>41	10	30	40	

The type of anaemia was not significantly associated with the demographic factors such as sex, residence, educational status. There were statistically significant differences were seen between the age groups as given in Table 5.

Table 5: Showing association of demographic variables with the type of anaemia

Variable		Type of anaemia			Pearson chi square value (p value)
		Macrocytic	Microcytic	Total	
Sex	Male	4	28	32	0.289(0.591)
	Female	11	55	66	
Residence	Rural	9	59	68	0.735(0.391)
	Urban	6	24	30	
Educational status	Degree	1	19	20	5.303(0.258)
	Diploma	3	7	10	
	High school	4	26	30	
	Illiterate	1	1	2	
	Middle school	6	30	36	
Age group	<20	1	5	6	0.012(0.994)
	21-40	8	44	52	
	>41	6	34	40	

DISCUSSION

In our study 67% of the patients were female and males were 33%. Similar findings were seen in a study done in Karnataka by AppuPatil et al in 2020 among 39 patients under the study 14(35.89%) were males and 25(65.10%) were females[7].In a study done Telangana tertiary care centre 68% were females similar to our study[8].But in one more study done in Telangana in 2022 by Fathima et al out of 872 anaemiapatients Females were 788 (90.3%)and males were 84 (9.7%) which shows more females having anaemia than in our studies were among anaemics[9] only 67 % were women but similar findings were seen in a study done in Madhya Pradesh in 2014 where 1048 anaemic, 174(16.6%) were males and 874(83.40%) were females[10].

In a study done in Nepal among anaemia patients males (58%) were more[11]. Similar finding was seen in a study done in Pakistan anaemia was more among males (67.4%) compared to females (64.5%)[12]

In our study the least Haemoglobin was 4.4 % which is better when compared to the study done in Nepal where the least Hb % was 2.2 [11], similarly 2.8 was the least Hb in a study done in Telangana [8]

In a study done in Tamil Nadu in 2015, 76% of anaemia was iron deficiency anaemia followed by macrocytic anaemia 10% .Similar to our study[13]in a study done in Telangana 2022 in a 53.6% of microcytic hypochromic anaemia followed by normocytic normochromic (42.2%), macrocyclic shows 2.3%, dimorphic 1.8%.

In our study,64(65%) of the participants had moderate anaemia followed by severe anaemia (35%) in a study done by Fathima in Telangana 58.6% were moderate anaemic followed by 36.6% were mild but severeanaemia was 4.7% which isvery lowwhen compared to our study[8]. In other study done in Karnataka severe anaemia levels were as high as 87%[7]. In a study done in Tamil Nadu severe anaemiawas nearly 50%[11]

CONCLUSION:

Moderate anaemia was the most common presentation. Easy fatigability, breathlessness on exertion, and light headedness were most common symptoms. Iron deficiency anaemia is the most common aetiologies. Educational status and age had correlation with severity of anaemia. Nutritional deficiency was the most common etiology for iron deficiency anemia.Easy fatigability, breathlessness on exertion, and light headedness were most commonly reportedsymptoms, while pallor, tachycardia, glossitis, and nail changes were the most commonly observed signs. Early diagnosis and proper nutrition will help to prevent developing anemia.

DECLARATIONS

Funding:None

Conflict of interest: None

Ethical approval: Institutional ethical review committee

REFERENCES

1. World Health Organization. Anaemia – fact sheets. World Health Organization, Geneva: 2023. [Online] available at https://www.who.int/news-room/fact-sheets/detail/anaemia. Accessed on 2.05.2023
2. Belwal E, Pandey S, Sarkar S. Anaemia prevalence in India over two decades: evidence from National Family Health Survey (NFHS). International Journal of Science & Healthcare Research. 2021; 6(4): 335-340. DOI: https://doi.org/10.52403/ijshr. 20211046
3. Global Health Metrics. Anaemia–Level 1 impairment. Lancet. 2019;393 [online] available at https://www.healthdata.org/results/gbd_summaries/2019/anemia-level-1-impairment. Accessed on 2.05.2023
4. Swaminathan S, Hemalatha R, Pandey A, Kassebaum NJ, Laxmaiah A, Longvah T, Lodha R, Ramji S, Kumar GA, Afshin A, Gupta SS. The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990–2017. The Lancet Child & Adolescent Health. 2019 Dec 1;3(12):855-70.
5. Ministry of health and family welfare. National family health survey (NFHS-5) 2019-21 compendium of fact sheets. New Delhi: Government of India.
6. Cook JD, International Nutritional Anaemia Consultative Group. Measurements of iron status: A report of the International Nutritional Anaemia Consultative Group (INACG). Washington, DC, USA: Nutrition Foundation; 1985. p. 78
7. P. Ravi Sarma. Walker HK, Hall WD, Hurst JW. Clinical Methods: The History, Physical, and Laboratory Examinations.Chapter 152. Red Cell Indices .3rd edition.Butterworths; 1990
8. Pasha AA, Ahmed SB. Clinical profile of anaemia in a tertiary care hospital. J. Evid. Based Med. Healthc. 2016; 3(33), 1586-1589. DOI: 10.18410/jebmh/2016/356
9. FatimaSH, AhmadT, LathaS, Javed G, MinhajuddinA. A study of anemia profile in research hospital in Telangana, South India Int J Adv Med 2022;9:273-7.
10. Gupta S. Prevalence of Anaemia among rural population living in and around of rural health and training center, Ratua Village of Madhya Pradesh. muller journal of medical sciences.2014 ; 5:15-18
11. Joshi R, Shrestha D B , Shah D RL , Khadka S. Iron Deficiency Anemia: A profile of a tertiary care hospital. Journal of Advances in Internal Medicine 2018;07(01):1-5

12. Shahab F, Raziq F, Shahab A, Sikandar S. Frequency of anaemia in patients presenting to tertiary care hospital in Peshawar , Pakistan. Khyber Med UnivJ . 2015 Mar. 19; 7(1):30-3. Available from: https://www.kmuj.kmu.edu.pk/article/view/13393
13. V.Shivashankar, Muhammed Aslam V.P, Pooja K Salian, Simin Sabu Jacob, Sojan P Paul. A study on prevalence and evaluation of anemia among in-patients in a tertiary care teaching hospital. Int. J. of Res. in Pharmacology &Pharmacotherapeutics. 2019;4(1):83-6. Available from: https://ijrpp.com/ijrpp/article/view/150