VOLUME - 10, ISSUE - 07, JULY- 2021 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Pathology

MORPHOLOGICAL EVALUATION OF ANAEMIA CASES IN DIFFERENT AGE GROUPS IN A TERTIARY CARE HOSPITAL IN CENTRAL INDIA

Arti Gupta	M.D. (Pathology), Associate Professor, Department of Pathology, G.R. Medical College, Gwalior, Madhya Pradesh, India.
Pankaj Kumar Gupta*	D.M. (Neurology), Consultant Neurologist, Aarogyadham Hospital, Gwalior, Madhya Pradesh, India. *Corresponding Author
Pushpendra Kumar Gupta	M.S. (Ophthalmology), Ophthalmologist, Bhopal, Madhya Pradesh, India.
Abhishree Geda	D.M.R.D., D.N.B. (Radiodiagnosis), Consultant Radiologist, V.Y. Hospital, Raipur, Chhattisgarh, India.

ABSTRACT

Introduction: Anaemia is prevalent clinical condition in both developing and developed countries so it needs constant evaluation. As morphological study of red blood cell is initial and cheep tool for approach to causative factors here is an attempt to evaluate morphological distribution of anaemia.

Aims and objectives: 1-To study distribution of anaemia in different age and sex category. 2-To determine morphological pattern of anaemia in all age groups.

Material and Methods: A total of 752 anaemic samples were studied by peripheral smear examination, Samples were also run in automated cell counter to find red cell parameters WHO Criteria were used as cut off for haemoglobin concentration

Results: Among Seven hundred fifty two cases , paediatric age group include 92 cases (12.23%), adult male aged 12 to 65 years include 160 patients (21.27%) , adult female aged 12 to 65 years was 476 (63.29%) and elderly patients more than 65 years was 24 (3.19%).Among all 752 cases 311 patients (41.3%) were having microcytic hypochromic anaemia

Conclusion: To conclude in our study maximum numbers of cases are observed in adult females in reproductive age group. In both adult females and children maximum number of cases is having microcytic hypochromic anaemia due to iron deficiency. So it is important to focus on screening, early dietary modification and supplemental therapy to reduce anaemia prevalence in the developing and developed countries.

KEYWORDS : Anaemia, microcytic, hypochromic, iron deficiency

INTRODUCTION

Anaemia a common clinical problem, leads to weakness and reduced work capacity in adults and also growth disturbance in children. It is a universal health issue, which affects both developing and developed countries having major impact on human health as well as social and economic development[1,2]. The initial morphological classification of anaemia along with correlation with red blood cell indices and morphological characteristics plays a crucial role in deciding the further clinical management[3]. Anaemia needs constant evaluation, so here we are studying morphological distribution of anaemia cases, by this we can determine common preventable causes of anaemia in different age groups.

AIMS AND OBJECTIVES

1- To study the distribution of anaemia in different age and sex category.
2- To determine morphological pattern of anaemia in all age groups.

MATERIAL AND METHODS

The study was conducted on the samples received routinely for typing of anaemia cases from in patient and outpatient department.

A total of 752 anaemic samples were studied for determination of morphological pattern of anaemia .The cases were divided into four groups - paediatric up to 12 years of age, adult male, adult female both between 12 to 65 years and elderly above 65 years.

Peripheral smear of all the samples were made and stained by leishman's stain, examined under oil immersion objective. Samples were also run in automated cell counter to find red cell parameters like Mean corpuscular volume (MCV), Mean corpuscular Haemoglobin (MCH), Mean corpuscular Haemoglobin concentration (MCHC) and RDW (red cell distribution width).

WHO Criteria were used as cut off for haemoglobin concentration

Age	Haemoglobin (g/dl)
<6years	11
6-12 years	12
Adult males	13
Adult females	12

RESULTS

Table 1 shows age and sex distribution of cases

Seven hundred fifty two cases of anaemia typing was studied out of them paediatric age group include 92 cases (12.23%), adult male aged 12 to 65 years include 160 patients (21.27%) , adult female aged 12 to 65 years was 476 (63.29%) and elderly patients more than 65 years was 24 (3.19%)

Table – 2 shows distribution of patients in various morphologic categories of anaemia typing.

In the present study maximum number of patients were adult female aged between 12 to 65 years, majority are microcytic hypochromic. Among all 752 cases 311 patients (41.3%) were having microcytic hypochromic anaemia, 243 patients (32.3%) found to be normocytic normochromic, 137 patients (18.2%) was Dimorphic and 61 patients (8.1%) were in Macrocytic category.

Table-1 Age and Sex Distribution of anaemia patients

Age and Sex category	Number of patients	Percentage
Paediatric Cases(0 -12years	92	12.23 %
Adult male(12-65 years)	160	21.27 %

Adult female (12-65years	476	63.29 %
Elderly (> 65 years)	24	03.19 %
Total patients	752	100 %

Table- 2 Morphologic Distribution of cases

Morphological categories	Paediatric Cases(0 - 12years)	Adult male (12-65 years)	Adult female (12-65 years)	Elderly (> 65 years)	Total Cases	%
Normocytic normochromic	16	49	164	14	243	32.3
Microcytic hypochromic	51	49	208	03	311	41.3
Macrocytic	08	26	27	-	61	8.1
Dimorphic	17	36	77	07	137	18.2
Total	92	160	476	24	752	100

DISCUSSION

Anaemia is a disease prevalent worldwide, especially common in developing countries. Low socio – economic status, lack of health education and access to healthcare are contributory factors because most of population is rural[4].

Classification of anaemia is based on aetiology and morphology[5]. Haematology analyzers are capable of giving a wide variety of red cell indices precisely and accurately. Examination of a well stained peripheral smear is an indispensable tool to show associated features of the blood elements[4]. Hence, a good knowledge about the interpretation of this analyser generated indices integrated with a peripheral smear examination, is not only time saving and cost effective but also ensures the sign off of a precise diagnosis of the type of anaemia by the reporting haematologist. In the present study an integrated approach combining the auto analyzer generated indices and manual peripheral smear examination was used to categorize the anaemia.

Most common Cause of anaemia varies in different age and sex categories. Anaemia cases shows a female predominance[6,7] In adult female out of total 476 anaemic patients, 208 (43.69%) patients having microcytic hypochromic anaemia, followed by normocytic normochromic -164 (34.45%),and it was observed that more severe cases were in microcytic hypochromic category instead of normocytic normochromic one. Results were similar to study by Banushree Srinivasamurthy[7].

In paediatric cases again most common type is microytic hypochromic anaemia which include 51 out of 92 cases (55.43%) followed by dimorphic, 17 cases (18.47%) closely followed by normocytic normochromic, 16 (17.58%) patients.

CONCLUSION

To conclude in our study maximum numbers of cases are observed in adult females in reproductive age group. In both adult females and children maximum numbers of cases are having microcytic hypochromic anaemia due to iron deficiency. So it is important to focus on screening, early dietary modification and supplemental therapy to reduce anaemia prevalence in the developing and developed countries.

REFERENCES

1. Hafizl F, Mahajan S, Koul K. Study of Morphological Patterns of Anemia in Adults. IOSR J Dent Med Sci. 2019; 18(11):46–50.
2. Mghanga FP, Genge CM, Yeyeye L, Twalib Z, Kibopile W, Rutalemba FJ, et al. Magnitude, Severity, and Morphological Types of Anemia in Hospitalized Children Under the Age of Five in Southern Tanzania. Cureus 2017; 9(7):1499. doi:10.7759/cureus.1499.
3. Garg M, Sangwan K. Comparision of Automated Analyzer Generated Red Cell Parameters and Histogram with Perpheral Smear in the Diagnosis of Anaemia. Int J Contemp Med Res. 2019; 6(8):111–6.
4. Patel S, Shah M, Patel J, Kumar N. Iron Deficiency Anemia in Moderate to Severely Anaemia Patients. Guj Med J. 2009;64(2):15–7
5. Kumar A, Kushwaha R, Gupta C, Singh US. An analytical study on peripheral blood smears in anemia and correlation with cell countergenerated red cell parameters. J Appl Haematol. 2013; 4(4):137–44
6. Adewoyin A, Nwogoh B. Peripheral blood film – A review. Ann Ib Postgrad Med. 2014;12:71–9
7. Banushree C Srinivasamurthy Spectrum of anemia and red cell parameters of patients in a tertiary care hospital in rural South India Int J Biol Med Res. 2013; 4(1): 2948-2951