PREVALENCE OF MEGALOBLASTIC ANEMIA IN A TERTIARY CARE CENTRE ,GWALIOR

Pathology

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ABSTRACT

Background: Megaloblastic anaemia is very common in India, but there is lack of data pertaining its prevalence and various conditions causing it . We did a reterospective study to facilitate documentation of data for the benefit of patients sufferin from megaloblastic anaemia.

Materials and Methods :This is a 5 years retrospective hospital based study. A total no. of 21150 patients over a period of 5 years i.e. from Jan. 2014 to Dec. 2018 in the central pathplogy lab ,department of Pathology, G.R. Medical College and associated Jaya Arogya hospital, Gwalior were examined .

Results: The mean age of presentation was 24.43. The male : female ratio was 1:1.25. Out of 21150 subjects, 3883 (18.36%) were found to have megaloblastic anaemia. Prevalence of megaloblastic anaemia in present study is 18.36%.

Conclusion: Despite a few limitations our data represents comprehensively the prevalence of megaloblastic anaemia. Pattern & distribution of Megaloblastic anemia is of extreme diagnostic importance for the benefit of patient.

KEYWORDS

Megaloblastic anemia, anemia, MCV

BACKGROUND:

Megaloblastic anaemia is very common in India, but there is lack of data pertaining its prevalence and various conditions causing it . We did a reterospective study to facilitate documentation of data for the benefit of patients sufferin from megaloblastic anaemia.

According to WHO, Globally, anaemia affects 1.62 billion people ,which corresponds to 24.8% of the population .The highest prevalence is in preschool-age children, and the lowest prevalence is in men. However, the population group with the greatest number of individuals affected is non-pregnant women . Anaemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all stages of the life cycle, but is more prevalent in pregnant women and young children[1].Over the past two decades, it was found that incidence of megaloblastic anaemia is increasing. Vitamin B12 deficiency and Folic Acid are the most common cause of megaloblastic anaemia. Vitamin B12 deficiency being more common now, due to vegetarian diet of people.

Mostly the people who consume a strict vegetarian diet an not consuming any animal source are at a higher risk of megaloblastic anaemia. So the only source of vitamin B12 is from contamination of food by microorganisms. It is found almost exclusively in animal-based products including red meats, poultry, seafood, milk, cheese and eggs. As vitamin B12 is produced by bacteria in the large intestines of animals, plant-based foods are generally not a source of vitamin B12. It is therefore a nutrient of concern for vegetarians and particularly for vegans who choose an entirely plant-based diet. A cross-sectional analysis study involving 689 men found that more than half of vegans and 7% of vegetarians were deficient in vitamin B12[2].In nature, this vitamin is only available in meat or animal products, which is why vegans must be careful to find other ways to include it in their diets. Vegetarians who eat dairy and eggs usually get enough B12 through these sources.

MATERIALAND METHODS:

This is a 5 years retrospective hospital based study. A total no. of 21150 patients over a period of 5 years i.e. from Jan. 2014 to Dec. 2018 in the central pathplogy lab ,department of Pathology, G.R. Medical College and associated jaya arogya hospital, Gwalior were examined . All patients presenting to our hospital with signs and symptoms of anaemia were included in the study. A mean corpuscular volume > 100 fL and blood film findings consistent with megaloblastosis ere diagnosed as megloblastic anaemia. Clinical findings were obtained from medical records of patients.

Patients of all age groups and both sex were included in the study. The data was collected compiled and statistically analysed using frequency distribution and percentage proportion.

RESULTS:

A total number of 21150 that came to central Pathplogy lab , department of Pathology, G.R. Medical College and associated Jaya Arogya hospital, Gwalior were evaluated. Out of these 9400 were males and 11750 were females. The male : female ratio was 1:1.25. The mean age of presentation was 24.43. Mean rbc count of patients was 1.58 million.mean haemoglobin count was 5.89. Mean total leucocyte count was 6430. Mean platelet count was 68284.The mean PCV was 18.42.mean mcv was 143.90 fl. Mean MCHC was 30.80. Mean MCH was 37.93. Out of 21150 subjects, 3883 (18.36%) were found to have megaloblastic anaemia. Prevalence of megaloblastic anaemia in present study is 18.36%.

Table 1:

PARAMETERS	MEAN
Age	24.43
RBC	1.58
HB	5.89
TLC	6430
PLATELET	68284
PCV	18.42
MCV	143.90
MCH	37.93
MCHC	30.80

GRAPH 1:
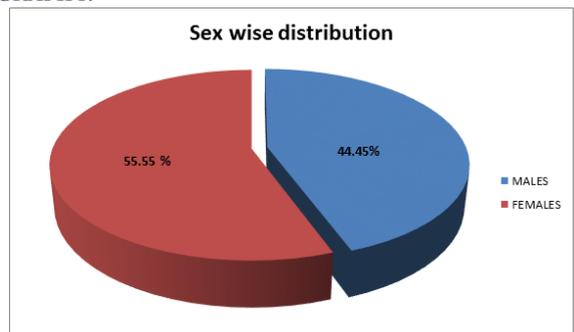
DISCUSSION:

Megaloblastic anemia is characterized by abnormally large nucleated red cell precursors called megaloblasts in bone marrow. Megaloblast is an example of unbalance between cytoplasm and nucleus due to improper and defective synthesis of nucleoproteins. 95 % cases due to vit B12 or folic acid deficiency leading to defective DNA synthesis. DNA present in every basic cell so abnormality effects rapidly proliferating cells. Peripheral blood picture: Hemoglobinized large

RBC (Macrocytes), PMN leucocytes & hypersegmented giant platelets. Anemia described is hyperchromic macrocytic.

Gera et al. shows an almost four fold rise in proportion of macrocytic anaemia cases over less than a decade at one center-2 % in1991 and 7.8% in 1999[3]

Sarode et al reported B12 deficiency in nearly 85% cases of megaloblastic anemia. The same finding was also observed by Mukibi et al[4] , Khanduri et al.[5] and various other workers. Gomber S et al in 1998conducted a study on Prevalence &aetiology of megaloblastic anaemia[6]

Megaloblastic anemia affected all age group in present study which may be due to an inadequate diet. Females were more affected in present study which in accordance to the reports of Khanduri et al. [5] . Similar study from Hyderabad by Nalli et al. also reported female majority in Megaloblastic anemia subjects[7].

The peak incidence in the study by Khanduri et al. was seen in the age group of 10–30 years and there was a preponderance of women .[5]in ourstudy mean age of presentation was 24.43 years. Similar age distribution was observed by Unnikrishnan et al. which showed male prepondence[8].

Chandra et al. reported sex ratio of 1.33:1 in their study[10].in our study sex ratio was 1:1.25 Iqbal et al. from Pakistan studied MA and described similar age mean in their study.[9] Mussarrat et al. observed, of 349 patients, 210 (60.17%) were males, and 139 (39.82%) were females in their study (male-female ratio - 1.5:1).[11]

In present study most common age group affected was 24.43 years, which suggest that MA is more prevalent in young age and more common in females.

LIMITATIONS:
This was a retrospective study based solely on the records stored in the analyser and anaemia typing registers, hence bias in reporting cannot be totally ruled out.Cases presenting to our tertiary care center could be included only , therefore this may not be the representative sample of that area. Another area of concern is that, being a laboratory based study, detailed clinical history including duration of symptoms was also not available for clinicopathologic correlation.

CONCLUSION:
Despite a few limitations our data represents comprehensively the prevalence of megaloblastic anaemia. A total number of 2115 patients were evaluated. The male : female ratio was 1:1.25.the mean age of presentation was 24.43. Pattern & distribution of Megaloblastic anemia is of extreme diagnostic importance for the benefit of patient.

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