RESEARCH ARTICLE

PREVALENCE OF ANAEMIA IN ELDERLY INDIVIDUALS.

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Manuscript Info	*Abstract*
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Manuscript History	Prevalence of anaemia in elderly is seldom studied which is an area of interest. Anaemia is a critical public health problem in all developing countries as it affects growth and energy levels. It is one of the important lifelong health considerations. The magnitude of the quality of life deficiency suffered by Anaemia is frequently underestimated and underappreciated and people tend to attribute this to the stresses of modern life.

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Introduction:-

Anaemia is a common health problem affecting nearly 2 million people worldwide. Young people are susceptible because of their rapid growth and associated high iron requirements during menstrual cycle in female population. 40-50% of pregnant women are anaemic in South Asia and continues to be in the highest in the world **NFHS.** But overall prevalence rates are more or less equal in both genders **De Maeyer et** al. **Begue et al** in 2004 reported that 2.9% to 61% men and 3.3% to 41% women suffered from Anaemia. **Makipour et al** proved one third cases of Anaemia in older individuals is due to nutritional lack, one third due to chronic diseases and the rest due to inadequate erythrocyte response with elevated levels of pro inflammatory cytokines –IL6.

Aim and Objectives:-
1. To assess age distribution of anaemia in elderly individuals.
2. To assess the degree of anaemia in elderly individuals by Hemoglobin estimation.
3.To assess Hematocrit values in elderly persons of same age group.

Methodology:-
After getting Institutional Ethical Committee approval, datas were collected from 500 patients attending Medicine outpatient department at Government Rajaji Hospital attached to Madurai Medical College, Madurai. All subjects were well informed about the study. Hb estimation was done by Sahli'sHaemoglobin apparatus by Acid Haematin method and other informations gathered by blood fed through autoanalyser were tabulated in the proforma.

Inclusion criteria:-
Age matched men and postmenopausal women.
Persons with Haemoglobin less than 12gms /dl in women and 13 gms /dl in men as per WHO criteria were taken for the study.

Exclusion criteria:-
Previous history of Anaemia of any cause
Past history of any gastro intestinal bleed, gastric surgeries, malignancies, chronic liver and kidney disorders etc.,

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Discussion:-
The Indian National Family Health Survey –III had identified increased risk of Anaemia among adult males and non pregnant adult females.

Anaemia is **defined** as low Haemoglobin concentration or low Haematocrit leading to decrease in oxygen carrying capacity of blood. Oxygen carrying capacity of 1 gm of Hb is 1.34 ml of oxygen normally. WHO defined Anaemia as Hb< 13 gms / dl or Haematocrit< 39% in adult males and Hb< 12 gms / dl or Haematocrit< 37 % in females.

WHO proposed a scheme for **classification** of public health severity of anaemia**Verster A.**Anaemia was considered as mild if prevalence is 1-9%, moderate if it is10-39% or severe if it is more than 40%. Anaemia can be classified depending on the Hb level; mild degree (9.0-11.9 g/ dl), moderate (7.0-9.0 g/dl), severe (4.0-7.0 g/dl) and very severe <4.0 gm /dl. Severe anaemia is of particular concern because it poses a significant health and mortality risk.

Acute Anaemia is due to hemolysis. Chronic onset vary with the age of the patient and the adequacy of blood supply to critical organs. Moderate Anaemia is associated with fatigue, loss of stamina, breathlessness and tachycardia.

Commonest type of Anaemia was found to be normocytic, normochromic on peripheral smear mainly due to nutritional deficiency or due to worm infestation. Micronutrient deficiency due to lack of essential minerals in the diet leads to malnutrition, increases public expenditure on health services. Overcoming this is a big challenge **Chakravarthy.**

WHO had estimated 2.5 billion individuals or about 40% of the world population are anaemic. Prevalence of Iron Deficiency Anaemia is being 42.3% in women (15-59 years) and 30% in men of same age group in the developing world. 88% of pregnant females and 74% of non pregnant females are anaemic in India.

If more than 40% is anaemic, the country comes under high prevalence category; if it is 15-40%, medium and if it is < 15 %, it is low prevalence category. India comes under high prevalence category.

A physiologic approach to anaemia diagnosis is based on the understanding that a decrease in circulating RBCs can be related to either inadequate production, shortened lifespan < 120 days, increased destruction or loss, due to maturation defects or hypoproliferative disorder.

The normal Haemoglobin content is 14-16 gm/ dl. Defects in Hb synthesis results from iron deficiency or decreased globin production. Defective Hb synthesis leads to cytoplasmic maturation defects and small relatively empty RBCs or abnormally slow DNA replication, leading to nuclear maturation defects and large full red cells. Defects in DNA synthesis are due to vitamin B_{12} and Folate deficiency. If the palmar creases are lighter in colour than the surrounding skin with the fingers extended, Hb level is often , 8 gms / dl..

Healthy older adults have an increased Erythropoietin levels to meet the increased demand. The decreased capacity of renal hormone production leads to development of anaemia. Further aging is associated with increased expression of proinflammatory cytokines, which can contribute to EPO sensitivity. Thus genetic variation in the expression of these cytokines can influence anaemia development in older adults by the induction of Hepcidin expression and suppression of the formation of erythroid colonies by cytokines.

Plasma Ferritin is a measure of Iron stores and the best single test to confirm Iron deficiency. It is a very specific test; a subnormal level is due to Iron deficiency, Hypothyroidism or Vitamin C deficiency. Plasma iron and total iron binding capacity are measures of iron availability. Plasma iron has a marked diurnal variation and becomes very low in acute phase response but raised in liver disease and hemolysis.

Stool for occult blood is more specific and less sensitive for gastrointestinal blood loss **Donald Ostrow.** Techniques to improve sensitivity include testing 3 consecutive early morning samples, following dietary restrictions and avoidance of certain drugs. Colonoscopy was not done in these patients taken up for study. The most common explanation in men and postmenopausal women is gastrointestinal blood loss. On a worldwide basis, hookworm and schistosomiasis are the most prevalent causes of gut blood loss. GI blood loss may be exacerbated by the chronic use of Aspirin or NSAIDs which cause intestinal erosions and impair platelet function. Proton pump inhibitors contributes to lack of iron availability from the diet.

Diabetes is one of the main causes of chronic renal insufficiency resulting in reduction of EPO secretion in older adults **Mehdi et al.**

Depression can affect the quality of nutrition of older adults, facilitating the development of anaemia **Onder G et al.**

Results and Analysis:-
The proportion of anaemic individuals did not differ much between men and women. This is because menstrual blood loss ceases in older women, making the risk of anaemia equal for both genders. In India, only 28% of women consume meat, egg, fish on a weekly basis and the iron availability of the vegetarian diet is poor **K Sridhar et al.**

Table I:-

GENDER	NO. OF CASES
MEN	211
WOMEN	289
TOTAL	500
MEAN ± SD	193 ± 2
P VALVE	0.63 SIGNIFICANT

Table I shows out of 500 persons, 211 were male subjects and 289 female patients. The mean ± SD was 193± 2 with a p value of 0.63 significance.
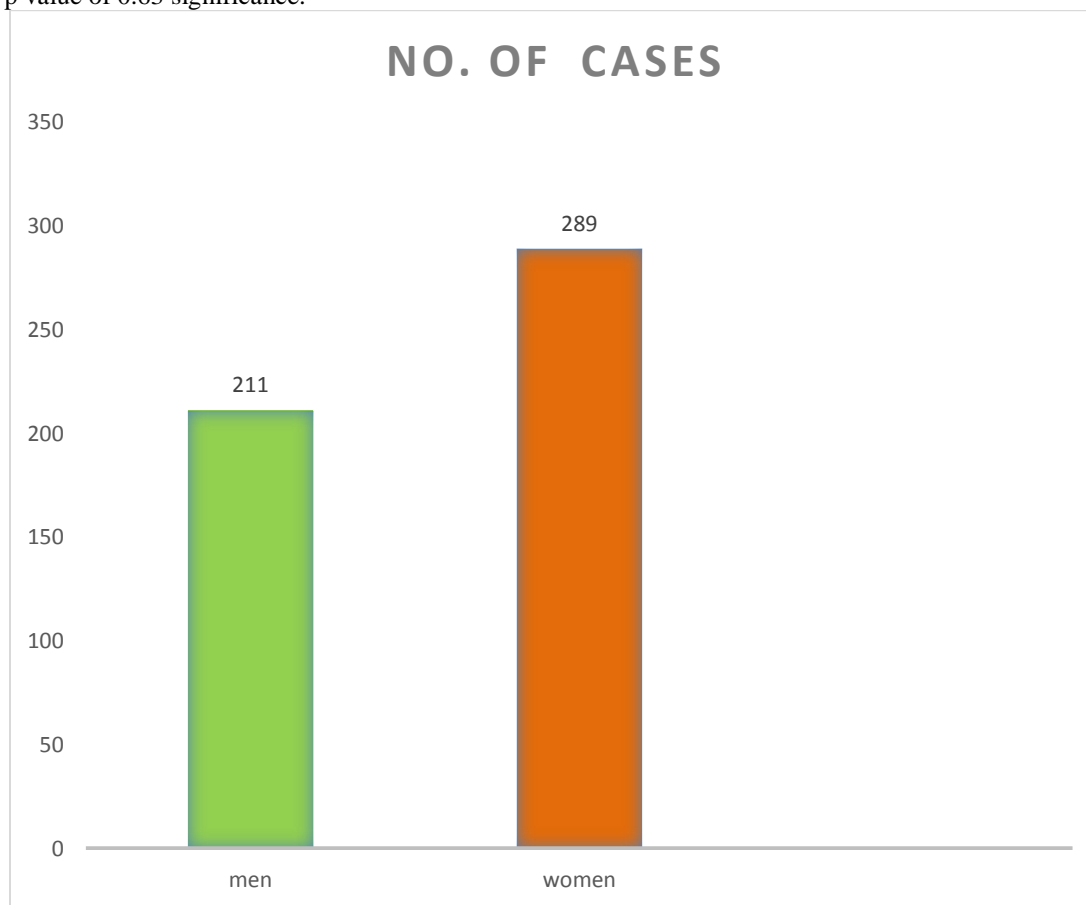
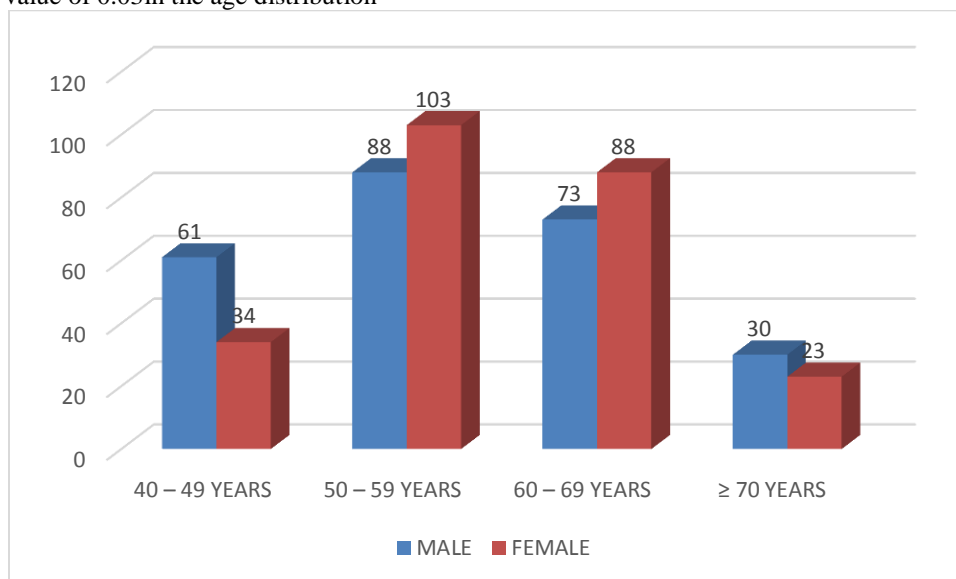**Table Ii:-** Age Distribution

AGE DISTRIBUTION	MALE	FEMALE	NO. OF CASES
40 – 49 YEARS	61	34	95
50 – 59 YEARS	88	103	191
60 – 69 YEARS	73	88	161

≥ 70 YEARS	30	23	53
TOAL			500
MEAN ± SD			52.3 ± 2.3
P VALUE			0.03 SIGNIFICANT

Table II also showed out of 500 persons , the mean age of the participants was 52.3± 2.3. It also showed a significant p value of 0.03in the age distribution


TableI ii:- Hemoglobin In Gm / Dl

HEMOGLOBIN	MALE	FEMALE	NO. OF CASES
< 6	10	13	23
6 – 7.9	8	24	32
8 – 9.9	46	49	95
10 – 11.9	39	102	141
12 – 13.9	65	72	137
14 – 15.9	47	13	60
16 - 18	12	0	12
TOAL			500
MEAN ± SD			10 ± 0.3
P VALUE			0.09 SIGNIFICANT

Table III Compares Hb distribution among males and females. Out of 500 patients, the mean ± SD for Hb is 10 ± 0.3 gm /dl . Here also 0.09 significance was seen in the p value.

Table IV:- predicted a MEAN± SD of 35.7 ± 0.23 haematocrit with a p value of 0.009 significance.

PCV	MALE	FEMLAE	NO.OF CASES
<10	4	0	4
10.1 - 19	7	17	24
19.1 – 29	62	62	124
29.1 – 39	96	171	267
39.1 - 49	67	14	81
TOAL			500
MEAN ± SD			35.7 ± 0.23
P value			0.009 SIGNIFICANT
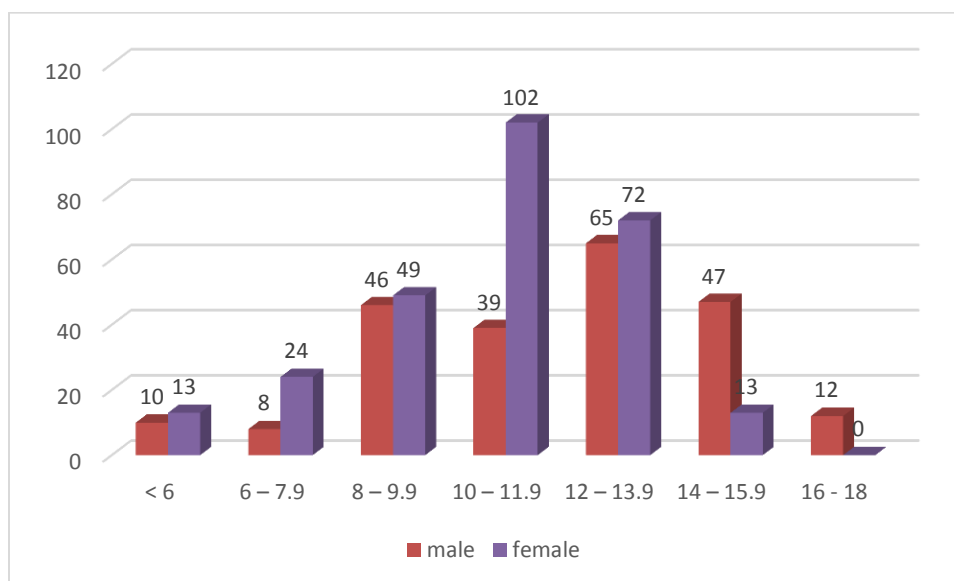
TABLE IV –PCV IN %
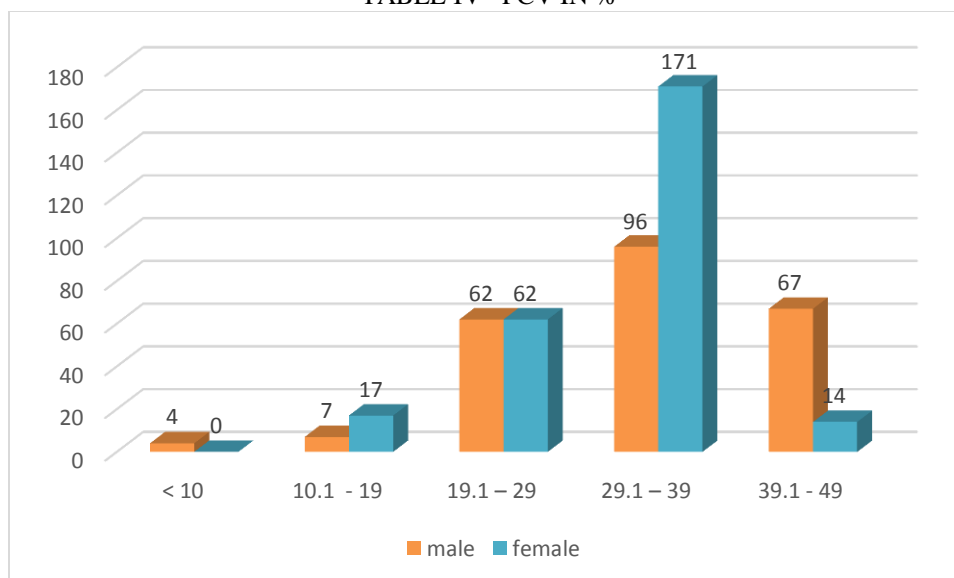
Conclusion:-

The prevalence of Anaemia in older adults is around 7.7% and usually associated with advancing age and presence of chronic illness.

Anaemia is a multi factorial disorder that requires a multi programmed approach for its prevention and treatment. It is totally preventable and treatable disease. It is easy to diagnose and treat and does not require expert opinion. In India, women enter pregnancy already in an Iron depleted state and it is supplemented as Ferrous fumarate with multinutrients routinely to all pregnant women.

Many women come to believe that it's normal to feel tired, weak or irritable but Iron Deficiency Anaemia is not normal. Patients who become anaemic slowly may remain asymptomatic for a long time. As it progresses, pallor, exertional dyspnoea, tachycardia, palpitations, angina, night cramps and cardiac bruits appear. Ultimately with severe anaemia, high output cardiac failure may develop. Folate and vitamin B_{12} deficiency are common in vegans, chronic alcohol abuse and pernicious anaemia.

Both men or postmenopausal women are not in the habit of taking iron preparations regularly. Ferrous product is safe and effective for use in uncomplicated iron deficiency anaemia. The Hb should rise by 10 g/ l every 7-10 days and a reticulocyte response will be evident by 1 week. A failure to respond adequately may be due to noncompliance, continued blood loss, malabsorption. Thus anaemia is an important marker in the investigation of health in older adults and helps to improve their quality of life.

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