



Prevalence of Peripheral Neuropathy among Anaemic Patients

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Abstract

Introduction: Anaemia is a common disorder among Indian population. Peripheral neuropathy though more common among diabetics is also found to be relatively more common among anaemic patients. Nutritional anaemia and anaemia due to chronic diseases are more commonly associated with peripheral neuropathy.

Materials and Methods: This study was conducted among the outpatients and inpatients in Tagore Medical College, Rathinamangalam between December 2017 – December 2018. Patients have their history taken according to a questionnaire and subjected to clinical examination. A questionnaire was used to assess peripheral neuropathy.

Results: This study involved 50 patients with anaemia presenting with peripheral neuropathic symptoms. All Patients having chronic kidney disease had peripheral neuropathic symptoms involving all 4 limbs. anaemic patients due to other causes predominantly had neuropathic symptoms involving both the lower limbs. Among these population 30 patients (60%) had haemoglobin less than 7g/dl. 15 among them had haemoglobin less than 5g/dl. 20 patients had haemoglobin greater than 7g/dl.

Conclusion: The above study shows a strong correlation among anaemic patients and development of peripheral neuropathy. Patients with iron deficiency had greater risk of developing neuropathic symptoms more involving the lower limbs. Chronic kidney disease patients however had involvement of all four limbs. Large study populations are required to substantiate these findings in near future.

Keywords: Macrocytic Anaemia, Peripheral neuropathy, Iron Deficiency Anaemia.

Introduction

Anaemia is a very common condition prevalent among all age groups in India. It is more common among children, elderly and pregnant women^[1]. Depending on the age groups the causes of anaemia varies from a simple nutritional deficiency to severe conditions such as chronic diseases eg, malignancy^[2]. The clinical

presentation of anaemia varies from mild fatigue on exertion, breathlessness, palpitations, leg swelling etc^[3].

Peripheral neuropathy presents as numbness, burning, tingling sensations involving the limbs mainly the legs than upper limbs^[4]. Peripheral neuropathic symptoms are mostly noted in patients with diabetes, kidney diseases, etc. These

patients on the long run develop peripheral neuropathic symptoms in association with anaemia^[5]. Most of these neuropathic symptoms involve the lower limbs as compared to the upper limbs. However, no major studies were conducted to study the direct correlation between anaemia and peripheral neuropathy. Thus, many studies have been conducted to find the correlation of peripheral neuropathy among patients with megaloblastic anaemia in different geographical regions^[6]. In the present study, we have investigated the correlation between various types of anaemia and the neuropathic manifestations.

Materials and Methods

This study was conducted among the outpatients and inpatients in Tagore Medical College, Rathinamangalam between December 2017 – December 2018.

Inclusion Criteria

1. All patients in age group between 20 - 59years.
2. Haemoglobin less than 10g/dl.
3. Patients with peripheral neuropathic symptoms involving one or more limbs.

Exclusion Criteria

1. Patients with malignancies
2. Patients with drug induced neuropathic symptoms.

Diagnosis of peripheral neuropathy and other clinical conditions

Patients have their history taken according to a questionnaire and subjected to clinical examination. A questionnaire was used to assess peripheral neuropathy. In addition to these questions the questionnaire also included questions on self-related general health status. Further data were also collected on age, sex, height, weight, alcohol consumption, smoking habits, history of diabetes, exercise, income, education and marital status. Patients were also subjected to investigations like complete blood count, renal function test, blood sugar, urine analysis, imaging wherever indicated.

Results

This study involved 50 patients with anaemia presenting with peripheral neuropathic symptoms. There were 36 females and 14 males (Figure 1). The age group were between 20-59years.

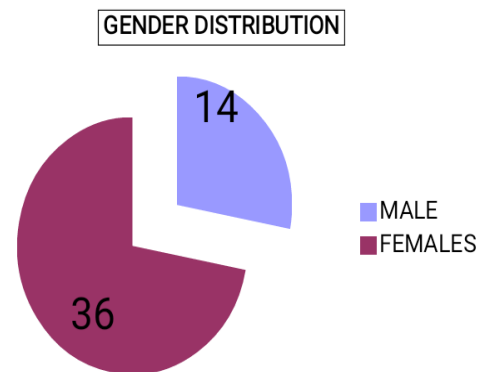


Figure 1: Distribution of gender in study population

22 of them had microcytic hypochromic picture (males – 4; females – 18). 20 patients (males - 7; females - 13) had normocytic normochromic picture, 8 patients had macrocytic picture (males - 3; females - 5) (Figure 2).

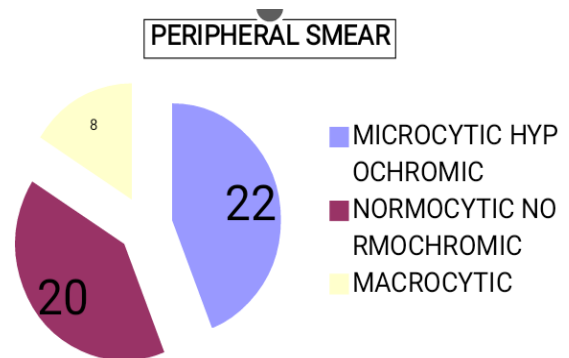


Figure 2: Peripheral smear observations

32 patients (males - 10; females - 22) had iron deficiency (18 - microcytic hypochromic picture; 14 - normocytic normochromic picture). 6 patients (males - 2; females - 4) had vitamin B12 deficiency and 2 females had folate deficiency. 2 patients (male - 1; female - 1) had dimorphic picture.

DISTRIBUTION OF ANEMIA

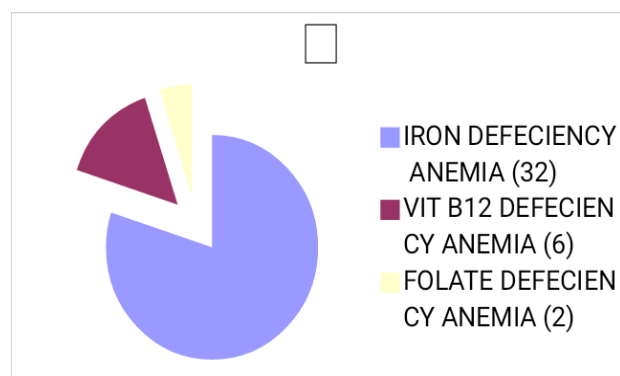


Figure 3: Distribution of types of anaemia

Among the 36 females, 18 were in their second and third trimesters of pregnancy. 14 among the population had chronic kidney disease (males - 6; females - 8), among these 10 patients had diabetes and 3 had hypertension. All Patients having chronic kidney disease had peripheral neuropathic symptoms involving all 4 limbs. anaemic patients due to other causes predominantly had neuropathic symptoms involving both the lower limbs. Among these population 30 patients (60%) had haemoglobin less than 7g/dl.

Discussion

This study shows that peripheral neuropathic symptoms are relatively quite common among anaemic patients irrespective of the aetiology. Though anaemia can coexist with conditions such as diabetes and chronic kidney diseases which are found to present with neuropathic symptoms, anaemia due to nutritional causes were also independently associated with peripheral neuropathy^[7]. Both iron deficiency and B12 deficiency were associated with neuropathy. Some studies have shown the distribution of peripheral neuropathy among iron deficiency anaemia^[8].

A study was done to find the prevalence of restless leg syndrome among the iron deficiency anaemia patients. Among the patients with such symptoms, length dependent neuropathy was more in the nutritional deficiency groups^[9]. On the

contrary, patients with chronic kidney disease had involvement of all four limbs. Though microcytic hypochromic picture signifies a severe iron deficiency anaemia, some patients with iron deficiency anaemia and peripheral neuropathic symptoms were also found to have a normocytic picture^[10].

Conclusion

This study highlights the importance of evaluating patients presenting with peripheral neuropathic symptoms for anaemia. Anaemia is found to be independently associated with peripheral neuropathic symptoms.

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