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Evaluation of Pancytopenia: A 2 Year Study.

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ABSTRACT

This study is aimed at analysing the various causes of pancytopenia and evaluating the same. Pancytopenia by itself is not a disease entity. This study was carried out from May 2013 till May 2015 in the department of clinical pathology, Central laboratory of Sree Balaji Medical College, Chrompet. These cytopenic patients were subjected to various haematological investigations like Hb estimation, Mean Corpuscular volume, Total Leucocyte count ,Differential Leucocyte Count, Platelet Count and Peripheral Smear examination. Our study showed that megaloblastic anaemia is the most common cause of pancytopenia followed by aplastic anaemia.

Keywords: Pancytopenia, Megaloblastic anaemia, Aplastic anaemia.

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INTRODUCTION

Pancytopenia is decrease in all the three blood formed elements namely the erythrocytes, leucocytes and thrombocytes. It can occur when marrow destruction occurs due to various causes like effect of toxins, radiation exposure, replacement by abnormal or malignant tissue, myelofibrosis or due to suppression of marrow growth and differentiation like megaloblastic anaemia [1,2].

Aim

The current study was aimed to evaluate the cases of pancytopenia by peripheral smear examination and/or bone marrow aspiration or biopsy and evaluate the same.

MATERIALS AND METHODS

This study was carried out in the Department of Pathology, Sree Balaji Medical College, Chennai, Tamil Nadu over a period of 2 years from May 2013 to May 2015.All the patients studied were subjected to routine haematological investigations and peripheral smear study to evaluate pancytopenia. A total of 100 cases were chosen based on the following three criteria- Hemoglobin Hb less than 9g/dl, Total Leucocyte count TLC less than 4000 cells/cu.mm and platelets less than 1,00,000cells/cu. mm.

Proper clinical history was obtained from each patient. Various haematological investigations done on the selected patients includes measurement of Hb, red cell indices like mean corpuscular volume, total and differential leucocyte count and platelet count was carried out on Sysmex hematology analyser. Morphological variation of RBCS like polychromasia, anisocytosis, poikilocytosis, and inclusions can be made by peripheral smear examination. Anaemias were then grouped into four morphological types-normocytic normochromic, microcytic hypochromic, macrocytic and dimorphic. Hypersegmentation / hyposegmentation and defective granulation in neutrophils and platelet count and morphology also studied. Informed consent obtained for bone marrow studies.Bone marrow aspiration using Salah needle was done from posterior superior iliac spine and biopsy done from the same site from a different plane using a Jamshedi needle under strict asceptic precautions.

RESULTS

The most common cause of pancytopenia in our study was megaloblastic anaemia 65%, followed by aplastic anaemia 10%.Other causes include hypersplenism 8%,post viral illness 7%,post typhoid fever 6%,myelodysplastic syndrome 3%,myelofibrosis 1%.

DISCUSSION

The most common cause of pancytopenia in our study is megaloblastic anaemia a type of nutritional anaemia in contrast to studies in the western world where aplastic anaemia is the most common cause. Although it is a readily correctable cause of pancytopenia it needs to be promptly identified. Aplastic anaemia is the second common cause in our study [3,4].

CONCLUSION

Pancytopenia is a common hematological condition seen in day to day clinical practice and should be suspected and evaluated on clinical grounds whenever a patient presents with anemia of unknown etiology, unexplained fever and bleeding tendency. The present study infers that a meticulous primary haematological investigations supported by bone marrow aspiration in cytopenic patients are helpful in understanding the ongoing disease process; to diagnose, or to rule out the aetiology of, cytopenia and in planning and treatment of cytopenic individuals. Severe pancytopenia has significant correlation with the clinical outcome and can be used as an effective prognostic tool.

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