Original Article

Demographic and Haematological Features of Aplastic Anemia in Adult Population: A Single Centre Experience

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ABSTRACT

Objective: To determine the frequency of different demographic and haematological features of patients diagnosed to have aplastic anemia,

Study Design: Purposive, case-series study.

Place and Duration of Study: This study was conducted at the Department of Pathology, King Edward Medical University Lahore from January 2007 to December 2014.

Materials and Methods: One hundred and forty-six consecutive aplastic anemia cases were included. The sociodemographic details, medical history, environmental, clinical and haematological features were included.

Results: The median age of patients was 28 years, 75 were female and 71 male. The disease was graded according to severity and results were as follows: 1) non-severe 50%, 2) severe 34% and 3) very severe aplastic anemia 16%. Majority of patients were from low socioeconomic 57.5% or middle class 32%.

Conclusion: Aplastic anemia shows almost equal sex distribution. Non-severe aplastic anemia is the most common type of aplastic anemia presenting in a diagnostic set up of a tertiary care hospital.

Key Words: Aplastic anemia, Pancytopenia, Features, Population.

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INTRODUCTION

The definition of aplastic anaemia; peripheral pancytopenia with a hypocellular bone marrow and absence of an abnormal infiltrate and little or no increase in reticulin.[1] Diagnosis of aplastic anaemia (AA) requires standard criteria.[2] This criteria requires to have at least two out of three of the following: Haemoglobin concentration (Hb) <100 g/l, neutrophil count $<1{\cdot}5\times10^9$/l and platelet count $<50\times10^9$/l.

The precise cause of AA is not known. In adults, the environmental factors include radiations, drugs, viruses, toxins, and chemicals. This disease may follow conditions like pregnancy, different viral hepatitis and immunological disorders. Despite all this the majority i.e. 70-80% of cases are idiopathic.[3] The remainder mainly consist of failure syndrome of bone marrow. Its incidence is 2-3 per million per year in Europe, but higher in East Asia.[4]

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It generally shows a bimodal distribution, with peaks at 10-25years and over 60years. The modified Camitta criteria is used to assess disease severity[5]

Patients commonly present with anaemia, infections and thrombocytopenia, if left untreated, most of the patients die due to infections and bleeding. There is not much data from Pakistan showing incidence of the disease. Our purpose was to get an insight into demography and other features of Pakistani aplastic population.

MATERIALS AND METHODS

This purposive, case-series study was conducted at Department of Pathology, King Edward Medical University Lahore from 1stJanuary 2007 to 31stDecember 2014. One hundred and forty-six adults male and female with aplastic anemia were included. Adult patients of 14years and above were included. Patients of aplastic anemia less than 14 yrs of age were excluded. The data was entered and analyzed through SPSS-20.

RESULTS

There were 71 (49%) males and 75 (51%) were females. Majority of the patient n=88 fell in the age group of 15-25years, followed by n=19 in age group of 26-35years, the n= 18 patients in 45-55 years age group and followed by age group 35-45 (n=13) and more than 55years(n=8) respectively. Mean age of patients was 28 years. Presenting complain was fever and pallor in majority of cases, bleeding manifestations were

relatively few (Table 1). Generally aplastic anemia patients have no organomegaly and this was true in our result as well but a few patients showed features of splenomegaly (Table 2). The modified Camitta criteria was used to assess disease severity. Majority of the patients belong to non-severe aplastic anemia (Table 3).

Table 1: Demographic information of the patients (n=146)

Variable	No.	%
Gender		
Male	71	49.0
Female	75	51.0
Age (years)		
15 – 25	88	
26 – 35	32	
46 -55	18	
> 55	8	
Presenting complaints		
Fever	84	58.0
Bleeding diathesis	33	22.0
Pallor/weakness	79	56.0

Table 2: Features of organomegaly

Organomegaly	No.
Hepatomegaly	0
Splenomegaly	3

Table 3: Grading of aplastic anemia

Grade	No.	%
Very severe aplastic anemia (VSAA)	19	16.0
Severe aplastic anemia (SAA)	50	34.0
Non-severe aplastic anemia (NSAA)	77	50.0

DISCUSSION

Aplastic anemia is a rare disease in west. Its incidence varies considerably worldwide. The incidence reported by Montané et al[6] in Spain is 2.34/million which is similar to studies in Europe and Israel. Other international studies in France, the United Kingdom, Scandinavia and Brazil show about similar results.[7,8]

The incidence of aplastic anemia is higher in Asia than in the West. A large study from Thailand, found a rate of 3.9/million and 5/million in the northeast region of Khonkaen.[9] In a Chinese Epidemiologic Study Group an incidence of 7.4/million was reported.[10] Asian studies of similar incidence figures of about 5/million in Sabah in Malaysia.[11] Uptil now there is not enough data that incidence of aplastic anaemia in Pakistan be determined. A Few studies showing frequency and demographic features are available.[12,13.]

In our study the peak age was around 28years other studies done in Pakistan also show a peak age around 30[12,13], peak age of presentation of AA in India is still younger that is 20 which resembles our study. However, a bimodal peak is seen in studies in Spain and other European countries.[5]

Male to female ratio was 1:1 in this study however other studies in Pakistan show male to female ratio 2.1:1,2.8:1[12,13] and 3:1[14], may be the limited number of patients in the study led to such different results, a longer study may show other results; some international studies collaborate with us.

Presenting features were pallor and fever but bleeding manifestations were in few patients. It seems that with mere pallor or weakness patient generally does not communicate for medical attention it is only when fever supervenes due to low white cell count that they come to hospital set up. Our findings are similar with Ahmed et al[14] and Vincent and Gruchy[15] published literature.

Organomegaly is not a feature of aplastic anemia but we had 3 patients with splenomegaly. Case reports in literature have also shown similar features plus tropical spleen is also an explanation in our setup.[16]

This study shows majority of pts belonged to non-severe aplastic anemia followed by severe aplastic anemia and least no of cases in very severe aplastic anemia. Other studies in India and Pakistan have one thing in common with us that they contained least number of patients in very severe aplastic anemia group which matches our study. However, study of Ahmed et al[14]is close to a study in Spain which have a significant number of patients belonging to very severe aplastic anemia group.

CONCLUSION

Aplastic anemia shows equal sex distribution and presents in younger age. Aplastic anemia registry set in Pakistan and its incidence recorded. Future directions refer to genetic studies due its presentation at early age.

Author's Contribution:

Concept & Design of Study:	Humera Rafiq
Drafting:	Arsala Rashid
Data Analysis:	Filza Saeed, Samina Naeem
Revisiting Critically:	Humera Rafiq, Arsala Rashid
Final Approval of version:	Humera Rafiq

Conflict of Interest: The study has no conflict of interest to declare by any author.

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