Case Report

Indian Journal of Pathology: Research and Practice
Volume 5 Number 2, May - August 2016
DOI: http://dx.doi.org/10.21088/ijprp.2278.148X.5216.27

Chronic Myeloid Leukaemia in Elderly- Case Series from Jigme Dorji Wangchuck National Referral Hospital, Bhutan

Dorji Kuenzang*, Rameshkumar Karuna, Samal Puja Devi***, Rai Pratap****, Wangchuk Dorji*****

*Medical Technologist in charge, ***Medical Technologist, ****Medical Laboratory Technician, Hematology Unit, Department of Pathology and Laboratory Medicine, Jigme Dorji Wangchuck National Referral Hospital (JDWNRH), Thimphu, Bhutan. **Professor and Medical Superintendent, Department of Pathology, KS Hegde Hospital, Nitte University, Mangalore, Karnataka, India.

Abstract

Introduction: The incidence of chronic myeloid leukemia (CML) increases with age, which can present with anemia initially. In this study, we aim to evaluate CML as a cause of anemia in the elderly. *Case Series:* From May to July 2015, patients above 60 years clinically suspected with anemia were included. The clinical details including the demographics were retrieved from the case charts. The laboratory parameters were correlated with the clinical features. The anemia was classified based on the morphology of the peripheral smear and graded based on the haemoglobin levels. The diagnosis of CML was confirmed on peripheral smear.

Among 102 patients, three patients were diagnosed with CML. Case no 1 and 2 had marked leukocytosis with thrombocytopenia and thrombocytosis respectively, while case 3 presented with pancytopenia. The spleen size varied from minimal to massive. Hemoglobin ranged from 9.6 – 10.4 g/dl. The patient who presented with pancytopenia died while on follow up. *Conclusion:* The incidence of CML in elderly (2.9%) is similar to the published literature. Other co-morbid factors can influence the clinical outcome.

Keywords: Anemia; Pancytopenia; Chronic Myeloid Leukemia; Elderly.

Introduction

Chronic myeloid leukemia (CML) is a malignant clonal disorder of hematopoietic stem cells that results in increase in myeloid cells and marked myeloid hyperplasia in the bone marrow. The incidence of CML increases with age [1]. The age-specific incidence rate increases from < 1 per 100 000 under the age of 40 years to 5 at the age of 65 years and exceeds 11 above 80 years [2]. The impact of age as a prognostic factor and the difference in the presenting features between young adults and elderly has been described [3, 4]. The symptoms are not specific, and include weight loss, asthenia, fever, sweats, and malaise. In 40% of cases, the diagnosis is based on abnormal blood counts and differential count. The physical findings consist mainly or only splenomegaly. The hallmark of the diagnosis is leukocytosis with left shift (predominant cells are myelocytes and neuthrophil with few or occasional myeloblasts) and basophilia. Anemia secondary to CML ranges from mild to moderate but is rarely severe. Thrombocytosis is a known feature of CML. Here we report a case series of CML occurring in elderly who had anemia as the presenting feature from Jigme Dorji Wangchuck National Referral Hospital.

Corresponding Author: Kuenzang Dorji, Medical Technologist in charge, Hematology Unit, Department of Pathology and laboratory Medicine, Jigme Dorji Wangchuck National Referral Hospital, Thimphu, Bhutan-10011.
E-mail: kuenzangd@jdwnrh.gov.bt

Case Series

It was a descriptive retrospective study to evaluate causes of anemia in elderly. The study was approved by Research Ethics Board of Health, Ministry of Health, Bhutan. Over the period of three months (May 1 to July 31, 2015), blood samples of patients (> 60 years) including both male and female who visited the outpatient department and/or who were in patients being evaluated for anaemia were included in the

study. Only patients above 60 years were included in the study to be considered as elderly. The details regarding age, sex, clinical presentation and therapeutic interventions were collected from the case charts. The causes of anaemia among the patients who were enrolled in the study were classified based on the morphology.

The clinical and laboratory features of patients who were diagnosed and confirmed as CML among those patients were tabulated and compared with the literature. The diagnostic evaluation for CML included history, the presenting complaints, physical examination, complete blood cell count, reticulocyte count and peripheral smear examination. Only descriptive statistics was applied.

A total of 102 patients were included in the study. Among them, out patients were more accounting for 63.72% and the rest 36.27% were in patients. Hematological malignancy contributed to 2.94% (n=3) of the geriatric anemia cases. All patients clinically suspected with CML were confirmed by peripheral smear (Figure 1). Hemoglobin in anemia due to CML ranged from 9.60 – 10.4 g/dl. Case no 1 and 2 had a marked leukocytosis with thrombocytopenia and thrombocytosis respectively, while case no 3 presented with pancytopenia initially. Hepatomegaly and splenomegaly varied between the cases. The clinical and laboratory features are summarized in Table 1.

Table 1: The clinical and laboratory features of CML patients (n=3)

Parameter	Case 1	Case 2	Case 3
Clinical features			
Age	84 years	60 years	78 years
Gender	Male	Female	Male
Presenting complaint/ sign	Ankle oedema Chronic diarrhoea	Fever, bleeding from mouth, Pain legs – DVT	Altered sensorium Fever
Hepatomegaly	+	-	+
Splenomegaly	-	+++ (16.3cm)	-
Pallor	+	+	+
Icterus	-	-	+
Laboratory profile			
RBC (10^6/µl)	3.47	3.79	3.88
Hemoglobin (g/dl)	9.60	10.30	10.40
WBC count (10^3/µl)	23.10	32.00	2.20
Platelet count (10^3/µl)	93.00	996.00	64.00
Percentage of blast cell	4.00	3.00	3.00
Follow up	Stable	Stable	Died

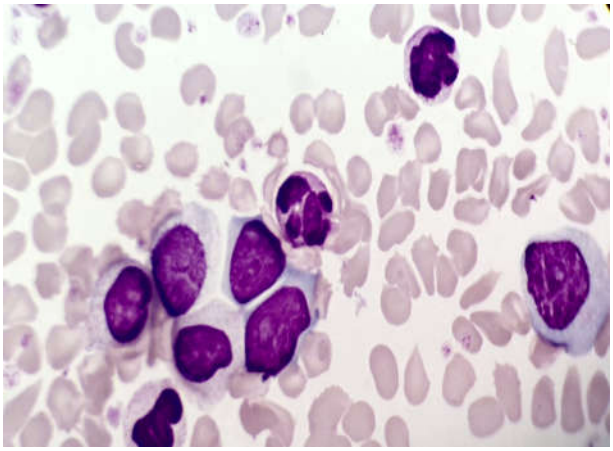

Fig. 1: Observe the increase in WBC count and the presence of blasts. Peripheral smear from case no 1. Leishman's stain x 1000

Discussion

Aging is associated with a progressive reduction in life-expectancy and functional reserve and with increased susceptibility for infections, chronic disease and malignancy. Age related changes in the hematopoietic system or immune system may lead to aggressive disease, but definite evidence regarding difference in clinical course or biology of CML in different age groups is still lacking. It is not clear whether this age effect is due to poorer disease biology, or due to other age related factors. Our finding of incidence of CML in elderly (2.94%) is similar to the reported literature [1-4]. The studies related to age and CML have shown age as an independent prognostic factor and the disease present in chronic phase at the time of diagnosis. In the present series also, all patients were in the chronic phase. Only one patient had splenomegaly, but the anaemia was mild. Since older patients appear to benefit from Tyrosine kinase inhibitors (TKI) to the same extent as the young, one may conclude that age-related biological differences do not seems to impact the prognosis of CML in the elderly[5]. Older individuals may require more frequent dose reductions as well as pharmacologic adjustments to avoid drug interactions.

The anemia in this series was mild ranging from 9.6 g/dl to 10.4 g/dl. The case no 3 initially presented

with pancytopenia, which improved after treatment with hydroxyurea. In spite of the improvement, with no splenomegaly, blasts of 3%, the patient died indicating there might be other factors which influenced the clinical outcome. The deep vein thrombosis which was the presenting feature in case no 2 was probably due to high platelet count. CML is known to be associated with high platelet count, but case no 1 and 3 had low platelet count of 93,000 and 64,000 per micro litre of blood respectively. Different studies have shown different features with various levels of significance such as female predominance, lower incidence of splenomegaly [6], poor performance status and higher percentage of blasts [3, 7, 8]. In the present series, only low incidence of splenomegaly was observed. No specific age related clinical profile or outcome was observed in the present series.

Conclusion

In conclusion, the incidence of CML was 2.94% and it is comparable to the reported literature. The anemia was mild and there was no age specific biologic difference or clinical course in the present series. Apart from age, other co morbid factors can influence the clinical outcome.

Conflict of Interest

We declare no conflict of interest

Acknowledgements

We are grateful to Dr. Gosar Pemba (MS), Research Ethics Board of Health (REBH) and Ministry of Health for their support in the ethical process for the research. The support from co-workers in laboratory hematology, JDWNRH is gratefully acknowledged.

References

1. Brincker H. Population-based age- and sex-specific incidence rates in the 4 main types of leukaemia. Scand J Haematol. 1982; 29: 241–249.
2. Brunner AM, Campigotto F, Sadrzadeh H, Drapkin B J, Chen Y B, Neuberg D et.al. Trends in all cause mortality among patients with Chronic Myeloid leukemia. Cancer. 2013; 119: 2620–2629.
3. Kantarijan HM, Keating MJ, McCredie KB, Walters R, Talpaz M, Smith TL et.al. Old age: a sign of poor prognosis in patients with chronic myelogenous leukemia. Southern medical Journal. 1987; 80(10): 1228-1232.
4. Castagnetti F, Gugliotta G, Baccrani M, Breccia M, Specchia G, Levato L et al. Differences among young adults, adults, and elderly chronic myeloid leukemia patients. Ann Oncol. 2015 Jan; 26(1): 185-92.
5. Lodovico B, Dawn D. Chronic Myelogenous Leukemia (CML) in the elderly. Mediterr J Hematol Infect Dis. 2014; 6(1): e2014037.
6. Hernandez-Boluda JC, Cervantes F, Camos M, Costa D, Rafel M, Montserrat E. Philadelphia chromosome-positive chronic myeloid leukemia in the elderly: presenting features, natural history and survival. Med Clin.1999; 112(15): 565–567.
7. Cortes J, Kantarjian H, O'Brien S, Robertson LE, Pierce S, Talpaz M. Result of interferon-alpha therapy in patients with chronic myelogenous leukemia 60 years of age and older. Am J Med. 1996; 100(4): 452-5.
8. Baccarani M, Pileri S, Steegmann JL, Muller M, Soverini S, Dreyling M. Chronic myeloid leukemia: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Ann Oncol. 2012; 23(7): vii72-vii77.