Research Article
Open Access

Awarenesss of Shah Abdul Latif University (SALU) students regarding leukemia and associated complication

Abstract

Objective: The theme of this study is to upgrade the students of Shah Abdul Latif University (SALU) Khairpur about leukemia and its associated complication.

Introduction: Leukemia is type of tumor cells and considered as disorder associated with aberrant expansion of hematopoietic which leads to indulging of WBCs count and its herald with blood and bone marrow. This type of cancer is considered as leading cause of death in children.

Design: a descriptive cross-sectional study was conducted at various departments of science faculty of SALU Khairpur and questionnaire was given to the various students to get feedback about leukemia knowledge and the data was analyzed.

Results: about 204 students had participated in this research study. Only 71.4% students were aware about this fetal disease, 27% students had opinion that leukemia was a genetic disorder and 61.3% students had replied with causative agent of leukemia was blood transfusion. Only 02% had given the accurate answer regarding leukemia along with its causes and complications. Significant results were obtained through statistical software.

Conclusion: According to survey conducted in SALU khairpur, it was noticed that leukemia had almost same symptoms that of Down syndrome and students were totally unaware about leukemia complication and severity. So it was necessary to conduct various educational programs regarding attentiveness about fetal diseases.

Keywords: leukemia, cancer, WBCs count, hematopoietic, fetal diseases, patients, blood transfusion, lymphoid cells

Volume 6 Issue 1 - 2019

Tahseen Ahmed Channa,[1] Altaf Ali Mangi,[2] Haroon Khan,[2] Fazal-ur-Rehman,[2] HashmatUllah,[2] Muhammad Asif Shehzad,[2] Muhammad Khalid Khan[2]

[1]Department of Pharmacy Mohtarma Benazeer Bhutto Medical University (SMBBMU), Pakistan
[2]Faculty of Pharmacy, Gomal University Dera Ismail Khan, Pakistan

Correspondence: Altaf Ali Mangi, faculty of Pharmacy, Gomal University Dera Ismail Khan, Tel 03313421263, Pakistan, Email pharmacistindh41@gmail.com

Received: January 06, 2019 | **Published:** February 11, 2019

Introduction

Leukemia is type of cancer (Malignant) disease associated with aberrant expansion of hematopoietic that leads to the indulging of WBCs count and its precursor with blood and bone marrow,[1–3] leukemia is familiar as leading cause of death among children due to cancer and associated problems. Erythrocytes and platelets counts may also reduced, with enhanced vulnerability to the infectious disease and bleeding disorders among the patients diagnosed with leukemia.[4–6] Four different types of leukemia are recognized so far including Acute Myeloid Leukemia (AML), Acute Lymphoid Leukemia (ALL), Chronic Myeloid Leukemia (CML) and Chronic Lymphoid Leukemia (CLL).[7,8] Acute Myeloid Leukemia is specified type of cancer of blood cells with frequent growth of abnormal cells and it was very difficult to categorized granulocytes.[9,10] Chronic Myeloid Leukemia is melanoma of bone marrow cells where the RBCs are synthesized and it is considered as genetic disorder with frequent cell death of bone marrow cells.[11,12] Chronic Lymphoid Leukemia is frequently found among adults above the age of 45 years in which excessive amount of beta lymphocytes are synthesized and patients are died after 1-2year of diagnosis[13–15] and it is very much common in females as compared to males. Acute Lymphoid Leukemia is type of tumor and bone marrow lost its ability to produce mature lymphocytes and it is very much common in children.[16,17] AML and ALL are profoundly attached with production of immature myeloid and lymphoid cells, Both AML and ALL are acute condition of leukemia[18,19] whereas CLL and CML are considered as chronic condition with unwanted growth of numerous blood cells such as Lymphocytes and Thrombocytes.[20,21] Leukemia can be managed easily with number of radiation and chemicals but its treatment regimen causes various side effects that alter the normal physiological functions of the body.[22,23] Bone marrow transplantation, cytotoxic chemotherapy and radioactive management are considered as therapy of choice. Chemotherapy and Radiotherapy are measured as 1st line treatment option but numbers of adverse drug reactions are reported with this type of therapy including muscle stiffness, weight loss, anorexia and alopecia (excessive hair loss).[24–26] Beside this numerous cancer drugs such as Bosutinib, Dasatinib, Imatinib, Nilotinib and ponatinib are frequently used for management of leukemia and it was noticed that these drugs are causing the adverse drug reaction when ever selected for treatment regimen.[27–29] Individual drug have different type of ADRs such as Imatinib may cause vomiting, abdominal cramps, diarrhea and skin allergic reactions,[30,31] on the other hand Dasatinib causes fluid retention, hemorrhage, fatigue and musculoskeletal pain.[32,33] Whereas Nasopharyngitis, Upper respiratory tract infections (URTI), pyrexia, constipation, myalgia, abdominal pain and excessive hair loss are reported with consumption of Nilotinib. Thrombocytopenia, fatigue, anemia, pyrexia, skin allergy and vomiting are the side effects observed with the continuous usage of Bosutinib drug when used alone.[34,35] ALL (Acute Lymphoid Leukemia) frequently occurs among children and other types found in adults.[36–38] As far as diagnosis is concerned bone marrow and blood sample is collected for evaluation of cytogenesis through the process of flow cytometry on the leukemic cells.[39,40]

Aims of the study

The main theme of this study is provide enough knowledge to the students of various universities regarding Leukemia and its associated complication and awareness educational programs and seminars should be conducted in SALU khairpur as the students get benefits from it and helps the health care team for proper management of leukemia.

Methodology

A descriptive cross-sectional study was conducted at various departments of science faculty of Shah Abdul Latif University (SALU) Khairpur for the period of 06 months, only those students were included who had enough knowledge regarding human health and its complication. Total 204 students had participated in this study and the questionnaire based on two portions were given to them 1st portion was comprises on demographic data including gender (Table 1), family and medical history, sibling count, family income and department etc whereas 2nd portion was consist on number of questions regarding leukemia and its associated complication and students were facilitated with ease about the filling of that questionnaire (Table 2).[41–43]

Table 1 Gender wise distribution of study subjects

Males	Females	Total
126	78	204
61.76%	38.23%	100%

Table 2 Knowledge regarding Leukemia

Gender	Yes	No	Don't know
MALES	23 (18.25%)	46 (36.50%)	57 (45.23%)
FEMALES	13 (16.6%)	36 (46.15%)	29 (37.17%)

Results & discussion

According to analysis of research data, the students were divided in accordance with Gender and furthermore they were categorized into various age groups (Table 3). It was observed from the received data that majority of male students had participated in this study (Table 4); total 126 (61.76%) males were included whereas only 78 (38.23%) females had contributed. From males 23 (18.25%) had knowledge about leukemia, 46(30.50%) had not enough knowledge about it whereas 57(45.23%) were unaware from the complications of leukemia. On the other hand 13(16.6%) females gave details about leukemia and its types. 36 (46.15%) were totally oblivious from leukemia and its complications and only 29(37.17%) had not answered about basics of leukemia. As far as 29 students were come under the age group of 18-21 years, 96 students were included in age group of 22-25years, 43 students were embraced in age group of 26-29 years whereas 36 students were included in the age group of 30-33years. From clinical part of questionnaire it was observed that 93 students had opinion that leukemia was type of cancer disease, 56 students had answered that it was genetic disorder and transfer from parents to their children. 125 students had answered that leukemia can occur with blood transfusion under dirty environment. 39 students had responded that blood transfusion was not safe in sense of transmission of this fetal disease. 87 students had replied patients were died, once they were diagnosed with leukemia. 13 students had replied with information about types of leukemia. Very few students had retorted about its management, new drugs and its diagnostic techniques.[44–46]

Table 3 Age wise group distribution of study subjects

Age in groups	Males	Females	Total
18-21 Years	26	3	29
22-25 Years	43	53	96
26-29 Years	34	9	43
30-33 Years	23	13	36
Total Study Subjects	126	78	204

Table 4 Details of leukemia inquired from study subjects

Questions	Yes n(%)	No n(%)	Don't know n(%)
Information of leukemia	36(17.6)	82(40.1)	86(42.1)
Acquaintance about Leukemia	146(71.5)	41(20)	17(8.33)
Leukemia is type of cancer? Your opinion	93(45.5)	57(27.9)	54(26.4)
Is this hereditary disorder	56(27.4)	86(42.1)	62(30.3)
Is this disorder occur due to blood transfusion	125(61.2)	66(32.3)	13(6.3)
Is it safe to transfuse blood	39(19.1)	134(65.6)	31(15.1)
Did you know anybody in your family or neighbor having this disease?	05(2.4)	96(47)	103(50.4)
What do you think about death ratio with leukemia	87(42.6)	34(16.6)	83(40.6)
Did you know about the varieties of leukemia	13(6.3)	156(76.4)	35(17.1)
Did you any information regarding symptoms of Leukemia	67(32.8)	91(44.6)	46(22.5)
Have you any idea about its diagnosis	02(0.9)	167(81.8)	35(17.1)
Did you know, Leukemia is more common in children	07(3.4)	149(73)	48(23)
Did you have any idea latest management of leukemia	03(1.4)	176(86.2)	25(12.2)
What did you know about survival rate of leukemia	01(0.4)	128(62.7)	75(36.7)
What did you know about relation between leukemia and Down syndrome?	0	10(4.9)	194(95)

Citation: Channa TA, Mangi AA, Khan H, et al. Awarenesss of Shah Abdul Latif University (SALU) students regarding leukemia and associated complication. *MOJ Bioequiv Availab.* 2019;6(1):14–17. DOI: 10.15406/mojbb.2019.06.00129

Conclusion

From the current study conducted at faculty of science, Shah Abdul Latif University (SALU) Khairpur it was concluded that patients should be updated with health care problems and their solutions and it was scrutinized that students need more attention towards leukemia and its sign & symptoms along with its diagnostic techniques and they should be updated with the new drugs used for the management of leukemia and symposium should be taken from time to time as youth should be aware from the fetal disease.

Acknowledgments

None.

Conflicts of interest

The author declares there are no conflicts of interest.

References

1. Blumenreich, M.S, *The white blood cells and differential count*. Clinical Methods: The History, Physical, and Laboratory Examinations. 3rd edition. Boston: Butterworths; 1990.
2. Verweij J, Casali PG, Kotasek D, et al. Imatinib does not induce cardiac left ventricular failure in gastrointestinal stromal tumours patients: analysis of EORTC-ISG-AGITG study 62005. *Eur J Cancer.* 2007;43(6):974–978.
3. Atallah E, Durand JB, Kantarjian H, Cortes J. Congestive heart failure is a rare event in patients receiving imatinib therapy. *Blood.* 2007;110:1233–1237.
4. Hatfield A, Owen S, Pilot PR. In reply to Cardiotoxicity of the cancer therapeutic agent imatinib mesylate. *Nat Med*. 2007;13:13 author reply 15–16.
5. Gambacorti-Passerini C, Tornaghi L, Franceschino A, et al. In reply to 'Cardiotoxicity of the cancer therapeutic agent imatinib mesylate. *Nat Med.* 2007;13:13–14.
6. Rosti G, Martinelli G, Baccarani M. In reply to 'Cardiotoxicity of the cancer therapeutic agent imatinib mesylate'. *Nat Med.* 2007;13(1):15; author reply 15–16.
7. *Cancer Facts and Figures 2007*. American Cancer Society: Atlanta; 2007.
8. National Comprehensive Cancer Network. NCCN: *Clinical practice guidelines in oncology. Chronic Myelogenous Leukemia*.
9. Baccarani M, Saglio G, Goldman J, et al. Evolving concepts in the management of chronic myeloid leukemia: recommendations from an expert panel on behalf of the European Leukemia Net. *Blood.* 2006;108:1809–1820.
10. Druker BJ, Guilhot F, O'Brien SG, et al. Five-year follow-up of patients receiving imatinib for chronic myeloid leukemia. *N Engl J Med*. 2006;355:2408–2417.
11. Hughes T, Deininger M, Hochhaus A, et al. Monitoring CML patients responding to treatment with tyrosine kinase inhibitors: review and recommendations for harmonizing current methodology for detecting BCR-ABL transcripts and kinase domain mutations and for expressing results. *Blood.* 2006;108:28–37.
12. Kerkela R, Grazette L, Yacobi R, et al. Cardiotoxicity of the cancer therapeutic agent imatinib mesylate. *Nat Med.* 2006;12:908–916.
13. Branford S, Seymour JF, Grigg A, et al. BCR-ABL messenger RNA levels continue to decline in patients with chronic phase chronic myeloid leukemia treated with imatinib for more than 5 years and approximately half of all first-line treated patients have stable undetectable BCR-ABL using strict sensitivity criteria. *Clin Cancer Res.* 2007;13:7080–7085.
14. Petzer AL, Eaves CJ, Lansdorp PM, et al. Characterization of primitive subpopulations of normal and leukemic cells present in the blood of patients with newly diagnosed as well as established chronic myeloid leukemia. *Blood.* 1996;88:2162–2171.
15. Deininger MW, O'Brien SG, Ford JM, Druker BJ. Practical management of patients with chronic myeloid leukemia receiving imatinib. *J Clin Oncol.* 2003;21:1637–1647.
16. Goldman JM, Melo JV. Chronic myeloid leukemia-advances in biology and new approaches to treatment. *N Engl J Med.* 2003;349:1451–1464.
17. Ren R. Mechanisms of BCR-ABL in the pathogenesis of chronic myelogenous leukaemia. *Nat Rev Cancer.* 2005;5:172–183.
18. Steelman LS, Pohnert SC, Shelton JG, et al. JAK/STAT, Raf/MEK/ERK, PI3K/Akt and BCR-ABL in cell cycle progression and leukemogenesis. *Leukemia*. 2004;18:189–218.
19. Van Etten RA. Mechanisms of transformation by the BCR-ABL oncogene: new perspectives in the post-imatinib era. *Leuk Res.* 2004;28 Suppl 1:S21–S28.
20. McGahon A, Bissonnette R, Schmitt M, et al. BCR-ABL maintains resistance of chronic myelogenous leukemia cells to apoptotic cell death. *Blood.* 1994;83:1179–1187.
21. Sirard C, Laneuville P, Dick JE. Expression of bcr-abl abrogates factor-dependent growth of human hematopoietic M07E cells by an autocrine mechanism. *Blood.* 1994;83:1575–1585.
22. Schindler T, Bornmann W, Pellicena P, et al. Structural mechanism for STI-571 inhibition of abelson tyrosine kinase. *Science.* 2000;289:1938–1942.
23. Druker BJ, Tamura S, Buchdunger E, et al. Effects of a selective inhibitor of the Abl tyrosine kinase on the growth of Bcr-Abl positive cells. *Nat Med.* 1996;2:561–566.
24. Druker BJ, Talpaz M, Resta DJ, et al. Efficacy and safety of a specific inhibitor of the BCR-ABL tyrosine kinase in chronic myeloid leukemia. *N Engl J Med*. 2001;344:1031–1037.
25. Kantarjian HM, O'Brien S, Cortes JE, et al. Treatment of Philadelphia chromosome-positive, accelerated-phase chronic myelogenous leukemia with imatinib mesylate. *Clin Cancer Res.* 2002;8:2167–2176.
26. Sawyers CL, Hochhaus A, Feldman E, et al. Imatinib induces hematologic and cytogenetic responses in patients with chronic myelogenous leukemia in myeloid blast crisis: results of a phase II study. *Blood.* 2002;99:3530–3539.
27. Talpaz M, Silver RT, Druker BJ, et al. Imatinib induces durable hematologic and cytogenetic responses in patients with accelerated phase chronic myeloid leukemia: results of a phase 2 study. *Blood.* 2002;99:1928–1937.
28. Kantarjian H, Sawyers C, Hochhaus A, et al. Hematologic and cytogenetic responses to imatinib mesylate in chronic myelogenous leukemia. *N Engl J Med.* 2002;346:645–652.
29. Kantarjian HM, Cortes J, O'Brien S, et al. Imatinib mesylate (STI571) therapy for Philadelphia chromosome-positive chronic myelogenous leukemia in blast phase. *Blood.* 2002;99:3547–3553.
30. Kantarjian HM, O'Brien S, Cortes JE, et al. Imatinib mesylate therapy for relapse after allogeneic stem cell transplantation for chronic myelogenous leukemia. *Blood.* 2002;100:1590–1595.
31. Zuna J, Hrusak O, Kalinova M, et al. TEL/ AML1 positivity in childhood ALL: average or better prognosis? Czech Paediatric Haematology Working Group. *Leukemia.* 1999;13:22–24.
32. Cayuela JM, Baruchel A, Orange C, et al. TEL-AML1 fusion RNA as a new target to detect minimal residual disease in pediatric B-cell precursor acute lymphoblastic leukemia. *Blood.* 1996;88:302–308.

33. Ballerini P, Landman Parker J, Laurendeau I, et al. Quantitative analysis of TEL/AML1 fusion transcripts by real-time RT-PCR assay in childhood acute lymphoblastic leukemia. *Leukemia*. 2000;14:1526–1528.

34. Rosenfeld C, Goutner A, Choquet C, et al. Phenotypic characterisation of a unique non-T, non-B acute lymphoblastic leukaemia cell line. *Nature.* 1977;267:841–843.

35. Groffen J, Stephenson JR, Heisterkamp N, et al. Philadelphia chromosomal breakpoints are clustered within a limited region, bcr, on chromosome 22. *Cell.* 1984;36:93–99.

36. Hoelzer D. Treatment of acute lymphoblastic leukemia. *Semin Hematol.* 1994;31(1):1–15.

37. Cuneo A, Ferrant A, Michaux JL, et al. Philadelphia chromosome-positive acute myeloid leukemia: cytoimmunologic and cytogenetic features. *Haematologica.* 1996;81:423–427.

38. Gleissner B, Gokbuget N, Bartram CR, et al. Leading prognostic relevance of the BCR-ABL translocation in adult acute B-lineage lymphoblastic leukemia: a prospective study of the German Multicenter Trial Group and confirmed polymerase chain reaction analysis. *Blood.* 2002;99:1536–1543.

39. Faderl S, Talpaz M, Estrov Z, et al. The biology of chronic myeloid leukemia. *N Engl J Med.* 1999;341:164–172.

40. Melo JV. The diversity of BCR-ABL fusion proteins and their relationship to leukemia phenotype. *Blood.* 1996;88:2375–2384.

41. Saglio G, Guerrasio A, Rosso C, et al. New type of Bcr/Abl junction in Philadelphia chromosomepositive chronic myelogenous leukemia. *Blood.* 1990;76:1819–1824.

42. Pane F, Frigeri F, Sindona M, et al. Neutrophilic-chronic myeloid leukemia: a distinct disease with a specific molecular marker (BCR/ABL with C3/A2 junction). *Blood.* 1996;88:2410–2414.

43. Secker-Walker LM, Craig JM, Hawkins JM, Hoffbrand AV. Philadelphia positive acute lymphoblastic leukemia in adults: age distribution, BCR breakpoint and prognostic significance. *Leukemia.* 1991;5:196–199.

44. Melo JV, Myint H, Galton DAG, Goldman JM. P190BCR/ABL chronic myeloid leukemia: the missing link with chronic myelomonocytic leukemia? *Leukemia.* 1994;8:208–211.

45. Radich JP, Kopecky KJ, Boldt DH, et al. Detection of BCR-ABL fusion genes in adult acute lymphoblastic leukemia by the polymerase chain reaction. *Leukemia.* 1994;8(10):1688–1695.

46. Brisco MJ, Sykes PJ, Hughes E, et al. Monitoring minimal residual disease in peripheral blood in B-lineage acute lymphoblastic leukaemia. *Br J Haematol.* 1997;99:314–319.

Citation: Channa TA, Mangi AA, Khan H, et al. Awarenesss of Shah Abdul Latif University (SALU) students regarding leukemia and associated complication. *MOJ Bioequiv Availab.* 2019;6(1):14–17. DOI: 10.15406/mojbb.2019.06.00129