

Treatment of relapsed undifferentiated acute myeloid leukemia (AML-M0) with *Ayurvedic* therapy

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ABSTRACT

A 16-year-old boy was detected with acute myeloid leukemia (AML – M0) with bone marrow pathology showing 85% blasts in February 07, 1997. He received two cycles of induction chemotherapy (3+7 protocol) with daunomycin and cytosar, following which he achieved incomplete remission with bone marrow aspirate showing 14% blasts. Subsequently, the patient received two cycles of high-dose cytosine arabinoside Ara-C and achieved remission. However, his disease relapsed on August 29, 1997. Peripheral blood smear showed 6% blast cells and bone marrow showed 40% blast cells. The patient refused further chemotherapy and/or bone marrow transplant and volunteered for *Ayurvedic* therapy (AYT) advocated by the author from September 09, 1997. Bone marrow studies done after six months of AYT indicated that the disease was in remission. The AYT was continued for five years and stopped. Thereafter, the patient received intermittent maintenance AYT for three months in the next two years. At present, the patient is normal and healthy and has completed 12 years of disease-free survival with AYT.

Key words: *Ayurvedic*, relapsed acute myeloid leukemia

INTRODUCTION

Acute myeloid leukemia (AML) is the most common form of acute leukemia^[1] and accounts for 15% of childhood leukemias.^[2] Modern induction chemotherapy results in complete remission in 50 to 90% of patients with *de novo* disease, but between 10 and 25% of patients have primary refractory disease and the majority of those who gain remission relapses within 3 years of diagnosis.^[3] The development of drug resistance is the limiting factor in the therapy of AML. Treatment of relapsed leukemia is

difficult and well-controlled trials in this group of patients are uncommon.^[3] There is scanty information available on long-term disease-free survival in AML patients with second relapse. We reported a case of high-risk AML patient who relapsed a second time after undergoing conventional therapy. Later, he received oral *Ayurvedic* treatment (AYT) along with supportive care and recovered.

CASE REPORT

A 16-old-boy was admitted in the Dharamshila Cancer Hospital and Research Centre, New Delhi, on February 05, 1997 with complaints of bone pains for the last 2 months and fever for last one month. His bone marrow aspiration study done earlier from Indraprastha Apollo Hospital on February 07, 1997 suggested acute lymphoblastic leukemia (ALL) L2. However, immunophenotyping study diagnosed it as AML – M0. The bone marrow pathology showed 85% blast. The patient was given two cycles of induction chemotherapy (3+7 protocol) with daunomycin and cytosine arabinoside cytosar, following which the patient achieved incomplete remission with bone marrow aspirate showing 14% blast. Subsequently, patient received two cycles of high-dose cytosine arabinoside Ara-C. The bone marrow study done on May 21, 1997 after the completion of first cycle showed less than 1% blast cells.

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The patient completed the second cycle of chemotherapy on June 01, 1997. During chemotherapy, the patient had 3 to 4 episodes of infection for which antibiotic coverage was given along with supportive care. However, bone marrow studies done on August 29, 1997 indicated relapse of the disease. Peripheral blood smear showed 6% blast cells and bone marrow showed 40% blast cells. The option of further chemotherapy and/or bone marrow transplant was discussed with the patient. However, the caregivers of the patient did not consent for any of the two options. The patient volunteered for the *Ayurvedic* therapy that started from September 09, 1997.

The patient was given oral AYT comprising of *Navjeevan*, *Valipani*, *Kamdhuda*,^[4] *Prak-20*,^[5] etc . The patients was given supportive therapy for fever and infection time to

time after getting culture and drug sensitivity test under the guidance of a competent MD, modern medicines. No other *Ayurvedic* medicines were given. The details of the medicines are given in Table 1. These medicines were found to be effective in the treatment of leukemia patients.^[6] The patient was clinically asymptomatic at the time of the start of the AYT. The patient tolerated the therapy well and cytopathology studies done about 6 months after the start of AYT on March 09, 1998 showed about 1% blast cells in bone marrow, whereas no blast cell was found in peripheral blood. The patient continued the *Ayurvedic* therapy with regular follow-up. Patient was followed up on monthly basis. Apart from clinical condition, his body weight and CBC were checked on monthly basis using the same pathology run by a MD, pathology at Dehradun or Dr lal Path lab in Delhi. The

Table 1: Details of the *Ayurvedic* medicines

Dose			
Medicines	Form	Dose	Frequency
Navjeevan	Tablet	125 mg	2 tablets BD
Valipani	Tablet	500 mg	2 tablets BD
Kamadudha Rasa	Powder	250 mg	TDS
Prak-20	Capsule	500 mg	1 capsule BD
Traditional Name	English /Scientific name		Proportion
Composition of Navjeevan	Anupan: Water		
<i>Rajat Bhasma</i>	Silver Bhasma		1 part
<i>Jaharmohra</i>	<i>Serpentine stone</i>		1 part
<i>Nirvisha</i>	<i>Delphinium denudatum</i>		1 part
<i>Taruni, gulab</i>	<i>Rosa centifolia</i>		1 part
<i>Chandan</i>	<i>Santalum album</i>		1 part
<i>Gojihva</i>	<i>Onosma Bracteatum</i>		1 part
<i>Lata kasturi</i>	<i>Hibiscus abelmoschus</i>		1 part
Composition of Valipani	Anupan: Water		
<i>Shudha Hingul</i>	Processed cinnabar		1 part
<i>Suddha Gandhak</i>	Processed sulfur		2 part
<i>Loha Bhasma</i>	Ferric oxide		1 part
<i>Amla</i>	<i>Emblica officinalis</i>		3 part
<i>Bhallatak</i>	<i>Semecarpus anacardium</i>		1 part
<i>Harad</i>	<i>Terminalia chebula</i>		1 part
<i>Ginger Juice</i>	<i>Zingiber officinale</i>		Q.S.
<i>Amla Juice</i>	<i>Emblica officinalis</i>		Q.S.
<i>Madhu</i>	Honey		1 part
Composition of Kamadudha Rasa	Anupan: Mishri		
<i>Mauktik Pishti</i>	Mytilus margaritiferus preparation		1 part
<i>Pravala pisti</i>	Corallium rubrum preparation		1 part
<i>Mukta sukti pisti</i>	Mytilus margaritiferus		1 part
<i>Kapardika bhasma</i>	Calcinated and purified <i>Cypraea moneta</i> shells		1 part
<i>Shankha bhasma</i>	Calcinated and purified <i>Turbinella rapa</i> shells		1 part
<i>Swarna gairik</i>	Calcinated and purified Ochre		1 part
<i>Amrta satva</i>	<i>Tinospora cordifolia</i> extract		1 part

Table 1 (Contd...)

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Composition of Prak-20		
Common name	Scientific name	Proportion
<i>Sunthi</i>	<i>Zingiber officinale</i>	12.5 mg
<i>Maricha</i>	<i>Piper nigrum</i>	12.5 mg
<i>Pippali</i>	<i>Piper longum</i> (fruit)	12.5 mg
<i>Haritaki</i>	<i>Terminalia chebula</i>	12.5 mg
<i>Vibhitaki</i>	<i>Terminalia bellirica</i>	12.5 mg
<i>Amalaki</i>	<i>Emblica officinalis</i>	12.5 mg
<i>Chitraka</i>	<i>Plumbago zeylanica</i>	12.5 mg
<i>Musta</i>	<i>Cyperus rotundus</i>	12.5 mg
<i>Katuki</i>	<i>Picrorhiza kurroa</i>	12.5 mg
<i>Devadaru</i>	<i>Cedrus deodara</i>	12.5 mg
<i>Vidanga</i>	<i>Embelia ribes</i>	12.5 mg
<i>Kulu/Kushta</i>	<i>Saussurea lappa</i>	12.5 mg
<i>Haridra</i>	<i>Curcuma longa</i>	12.5 mg
<i>Daruharidra</i>	<i>Berberis aristata</i>	12.5 mg
<i>Danti</i>	<i>Baliospermum montanum</i>	12.5 mg
<i>Indrayav</i>	<i>Holarrhena antidysenterica</i> (seeds)	12.5 mg
<i>Pipali mool</i>	<i>Piper longum</i>	12.5 mg
<i>Trivrit</i>	<i>Ipomoea turpethum</i>	12.5 mg
<i>Punarnava</i>	<i>Boerhavia diffusa</i>	25.0 mg
<i>Mandoor Bhasma</i>	Ferric oxide	250 mg

peripheral blood smear study done at regular interval did not show any abnormality. The AYT was continued for five years and stopped. Thereafter, the patient received intermittent maintenance AYT, same as mentioned before, in the same doses for three months in the next two years.

In October 2007, the patient developed a testicular lesion suspected to be tuberculosis. However, cytology studies of the lesion, PCR analysis, and semen culture were all negative. The AYT was restarted for six months from November 2007. At present, the patient is normal and healthy and has completed 12 years of disease-free survival with AYT.

DISCUSSION

AML can be co-related to *Majja Kshaya* described in Ayurveda. There is no concrete reference with me, except the teaching of my late father who experienced his first success in early 1960s and made his own interpretations. One may refer as traditional knowledge or hypothesis. And despite improvement in the remission rate and overall survival during the last 20 years or more, disease recurrence remains the most common cause of treatment failure.^[3] In contrast to ALL, the progress in the therapy of childhood AML lags behind, with cure rates of approximately 40 to 60%.^[2] Patients try various complementary and alternative medicines when the conventional options exhaust. Many leukemia

patients in India try *Ayurvedic* therapy for treatment and palliation.^[7] The present case indicates that the oral herbomineral *Ayurvedic* medicines can be effective in treatment of AML without producing any toxic side effects. As the patient has not taken any other therapy after his disease relapsed, we believe that the *Ayurvedic* therapy was responsible for the remission of his disease.

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