

**FRESH AYURVEDA HERBAL JUICES FOR CHRONIC MYELOID LEUKEMIA: A
CASE STUDY**¹Purnima Datey, ²Alex Hankey and ³*Pradnya Karindikar¹Arogya Yog Evam Rasahar Shodh Samiti, Bhopal.^{2,3}Professor Emeritus of Biology, MIT World Peace University, 124 Paud Road, Pune, MA 411038.***Corresponding Author: Dr. Pradnya Karindikar**

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ABSTRACT

Background: At present, incidence of leukemia is increasing. Adverse environmental factors, side-effects of drugs, and polluted foods all increase its incidence. Drugs used for leukemias extend patient life-span, but do not cure. Chemotherapy is standard, but expensive and with side-effects. Alternatives need to be identified. Here we present a case of Chronic Myeloid Leukemia, which responded well to Ayurveda Rasahara, herbal juice, treatment. **Methods:** A case study of seven month's duration. **Patient:** A male diagnosed with Chronic Myeloid Leukemia on 23-07-2014 aged 46. **Informed Consent:** Filled and signed by participant. **Medicines:** 400mg Imatinib, increased to 600mg; then with Rasahara. **Assessment:** BCR-ABL%. **History:** On diagnosis, patient was prescribed 400 mg Imatinib per day. This was increased to 600 mg p.d. when BCR-ABL% increased. After initial reduction BCR-ABL% increased greatly. Rather than start second line medication, the patient reported to the Rasahara Kendra Clinic on 08-02-2017. He then took Rasahara daily. **Results:** After 3 weeks Rasahara, tests indicated a large decrease in BCR-ABL%. By 20-12-17 it was only 0.030%. The patient also reported increased well-being. **Discussion:** The patient's physician hypothesizes that Rasahara has helped Imatinib to work. All the herbs prescribed are known to fight cancer; whether they caused the decrease in BCR-ABL% or the Imatinib is yet to be determined.

KEYWORDS: Ayurveda, Herbal Juices, Rasahara, BCR ABL%, Imatinib, CML.**INTRODUCTION**

Blood cancers account for about 10% of all new cancer cases diagnosed in the US in 2017. Of the three types, lymphomas are most prevalent at 47%, with leukemias second at 36%, and myelomas third, at 17%.[†] Incidence of leukemia is increasing, caused by such factors as drug side-effects, and pollution of foods and the environment. Here we report a case of leukemia in a male, aged 46 years, which responded well to a supplementary treatment not previously reported for such a condition, *Rasahara*, fresh herbal juices recommended in Ayurveda.

Of the four main types of leukemia: Acute Myeloid Leukemia, Chronic Myeloid Leukemia (CML), Acute Lymphoblastic Leukemia and Chronic Lymphocytic Leukemia, all become most serious when they enter stages refractory to treatment. For CML, the pathology becomes refractory when the patient's condition progresses to the blast crisis stage.^[1] Fatality then becomes inevitable. CML is caused by expression of the chimeric BCR-ABL tyrosine kinase oncogene, produced by the t(9;22) Philadelphia translocation.^[1] Currently, its first line treatment is Imatinib, also known as Glivec

(Gleevec), an orally administered inhibitor of the BCR-ABL tyrosine kinase. In the case reported here, failure to respond to Imatinib treatment began after only a single year, but the patient's condition was again brought under control by addition of the supplementary, Ayurveda, treatment. Imatinib: Generally, a patient can be treated with the drug for several years with good survival rates. Studies estimate 83% event-free survival at 6 years;

TABLE 1: HERBS AND FOOD SUPPLEMENTS USED FOR CHRONIC MYELOID LEUKEMIA**Table 1 Caption: Rasahara Herbs and Food Supplements given to Patient.**

Hindi Name	Common Name	Botanical Name	Daily Dosage
gehU— ke jvare	Wheatgrass	<i>Triticum Aestivum</i>	50 ml from 25gm Wheatgrass
GvarpaQa	Aloe Vera	<i>Barbadensis Mill.</i>	50 ml. pulp of leaf
iglae@	Giloye	<i>Tinospora Cordifolia</i>	50 ml from 15 gm vine
zIzm	Shisham	<i>Dalbergia Sissoo</i>	50 ml. from 4 gm or leaves
tulsl	Tulsi	<i>Ocimum Tenuiflorum</i>	50 ml. from 4 gm leaves
nairyl dUx	Coconut Milk	<i>Cocos Nucifera</i>	50 gm fresh coconut pulp + 100 ml water
hLdI	Haldi	<i>Curcuma Longa</i>	25 ml juice from 50 gm fresh root

estimated freedom from progression to blast crisis is 93% when taking it as first-line treatment. Estimated overall survival is 88%, increasing to 95%, when only CML-related deaths are considered.^[2] The normal protocol for taking Imatinib is: Start at 400 mg per day, then increase successively to 600 mg, and 800 mg; break for 2 months, then start again at 400mg^[3], though possible acute side-effects must be controlled.^[4]

BCR-ABL% test: this test indicates the percentage activity of tyrosine kinase, as BCR-ABL oncogene RNA expression, a measure of the intensity of the pathology^[5], e.g. using a sensitive real-time fluorescent PCR method. Clinically, the test is usually advised every three months, but the patient was sufficiently concerned about his condition, to occasionally have it checked more often. The test is relatively new, and was not available in India when the patient was first diagnosed, as indicated by the absence of BCR-ABL% results in first stages of the case history.

Ayurveda Herbs Employed: Use of Ayurveda for cancer in general^[6], and CML in particular, is known.^[7] The city of Bhopal's Rasahara clinics, which have been operative since January, 2006, generally use a choice of some 14 freshly grown and harvested Ayurveda *dravya*, herbs. In this case, on 8th February, 2017, the patient was prescribed a first combination of four such *dravyas*, Wheatgrass (*Triticum Aestivum*)^[8], Giloe (*Tinospora Cordifolia*)^[9], Shisham (*Dalbergia Sissoo*)^[10], and Alovera (*Barbadensis Mill.*)^[11] as given in Table 1 above. All are ascribed therapeutic properties against cancer (Ayurveda: *Arbuda*). (Ref.) On 4th September, 2017, the Shisham was changed to Tulsi (*Ocimum Tenuiflorum*)^[12] to allow for the change of season, Coconut Milk^[13] was added as a dietary supplement. On 1st December, 2017, Haldi (*Curcuma Longa*)^[14] was added as a further supplement, for *ushna*, warming, and anti-oncogenic properties. Anti-carcinogenic Ayurveda herbs, including coconut, have been well reviewed.^[6]

METHODS

Methods: A case study of ten month's duration.

Patient: A male diagnosed with Chronic Myeloid Leukemia on 23-07-2014 aged 46.

Informed Consent: Filled and signed by participant.

Medicines: 400mg Imatinib, increased to 600mg; then with Rasahara.

Assessment: BCR-ABL% from 1st January 2016.

History: On diagnosis, patient was prescribed 400 mg Imatinib per day, increased to 600 mg as BCR-ABL% increased. After initial reduction BCR-ABL% increased. Rather than start 2nd line medication, the patient reported to the Rasahara Clinic, and then started taking Rasahara daily.

Participant: The patient, a 46-year-old male came for Rasahara consultation 8-02-2017.

Herbs used: as described variously in Table 1 above.

Setting: After consultation, regular prescriptions of fresh herbal juices are dispatched daily from one of four Rasahara Kendra clinics in Bhopal, M.P., delivered by trained clinic employees every morning at the prescribed time, 0700 to 0900 hours.

Study Design: A case study from January, 2014, to January, 2018, with Rasahara from 02-2017.

Interventions: Imatinib plus Rasahara as in Table 1 above given every morning, see Table 2.

Assessments: BCR ABL %, starting on 08-04-2016.

CASE HISTORY & RESULTS

The CML case described here, in a 46-year-old male, had been diagnosed on 23-07-2014, and immediately started treatment with Imatinib, 400mg daily. Six months later, on 23-01-2015, his condition was described as 'Under Control'. Subsequent events are detailed in Table 2. On 08-04-2016 his first BCR-ABL test gave 2.3288%, and the 400mg dose continued. However, when the test showed increase in value to 4.4733% on 23-05-2016, dosage was increased to 600mg (the 'First Mutation'). A test decrease to 3.5622% was subsequently recorded on 10-09-2016.

Table 2: Chronic Myeloid Leukemia Case History, Consultations and Assessments.**Table 2 Caption: Table 2 displays a time line of the patient's assessments, test reports and prescriptions.**

Date	BCR-ABL%	Rasahara treatment	Medicine Dose
23-07-14	CML Diagnosed	Not yet	Imatinib 400MG
23-01-15	"CML controlled"	Not yet	Same
08-04-16	First Reading 2.329%	Not yet	Same
23-05-16	4.4733%	Not yet	Imatinib 600MG
10-09-16	3.5622%	Not yet	Same
21-01-17	13.4950%	Not yet	Same
09-02-17	No Test Made	Rasahara Started: Wheat grass, Giloe, Shisham, Alovera (am) Plus Giloe only (pm)	Same
25-02-17	2.199%	Same	Same
04-03-17	3.010%	Same	Same
04-06-17	1.360%	Same	Same
04-09-17	0.045%	Changed to: Wheat grass, Giloe, Tulsi, Alovera, Coconut milk, Termaric Due to Change in Season	Same
01-12-17	No Test Made	Same + Haldi	Same
20-12-17	0.030%	Same as Previous	Same
01-03-18	0.060%	Changed to: Wheat grass, Giloe, Shisham, Alovera, Coconut milk, Due to Change in Season	Same
01-07-19	0.044%	Changed to: Wheat grass, Giloe, Tulsi, Alovera, Coconut milk, Termaric Due to Change in Season	Same
01-03-19	No Test Made	Changed to: Wheat grass, Giloe, Shisham, Alovera, Coconut milk, Due to Change in Season	Same
01-06-20	0.00%	Same	Same

followed by a severe increase to 13.4950% on 21-01-2017 (a 'Second Mutation'). Three weeks later, on 08-02-2017, the patient reported to the main Rasahara Kendra Clinic for consultation, and from 09-02-2017, started taking the Rasahara as indicated below in Table 2.

After 3 weeks Rasahara, tests indicated a large decrease in BCR-ABL expression to 2.199%. By 20-12-17 it was only 0.030%. Despite an increase to 3.010% on 04-03-

2017, test values decreased to 1.360% on 04-06-2017, and further to 0.045%, well below the 0.1% threshold that is considered 'safe' (As his doctor said). Three months later, on 20.12.2017, the BCR ABL% test value was not checked further in every three months. It was checked twice before this date. It was increased to 0.060 and then again decreased in next checkup, it was 0.044. It is now at 0.00%, till this date (15-06-2020). The patient can now be considered out of danger.

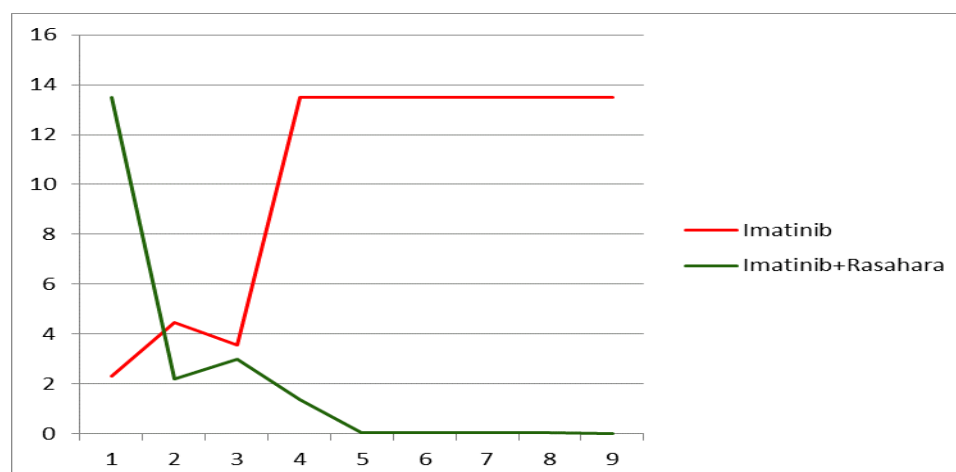
**FIGURE 1: Patient's BCR ABL % Vaules when treated with Imatinib alone, compared to Imatinib plus Seasonally Adjusted Rasahara.**

Figure 1 Caption: the two graphs show significant reduction in BCR ABL % value during Imatinib + Rasahara treatment compared to increase when taking Imatinib alone. Numbers on x-axis are the test number for each treatment, while the y-axis indicates the BCR ABL% value.

This remarkable fact is the basis for reporting the case. It is also significant that the patient has also reported increased well-being, despite still taking his daily 600mg dose of Imatinib. The graph portrayed in Figure 1, compares the quarter-by-quarter progress of the patient's pathology when taking Imatinib alone, with that for Imatinib plus Rasahara supplements seasonally prescribed. Regarding the patient's own perspective on his case, see his account in Figure 2.

DISCUSSION

The case is fortunate in having regularly repeated assessments over the past two years with a reliable test of % expression of the tyrosine kinase (TK) oncogene, active in most cases of CML and certain other leukemias. The tests clearly depict progression of the pathology, indicating its usual kind of progress using the Imatinib TK inhibitor alone, compared to its astonishing reduction when that was supplemented by the Rasahara herbal juices (Figure 1).

Also of significance is that the patient consulted three oncologists in different cities about the progress of his disease. All three told him to opt for the higher doses of the medicine, Dasatinib, after the second mutation which appeared in his report of 18-05-16. They opined that this was the second, terminal phase of disease. Despite receiving all this advice, the patient did not decide to start that medicine, partly because of uncertainty of obtaining positive results even when taking it, and not least, because of its exorbitant cost, Rs1,98,816 per month, rather than Rs8,580 per month for Imatinib 600mg. Also, during those critical weeks, a senior professional colleague in the Government of Madhya Pradesh Forest Department where he worked, told the patient his own story. The colleague had become a patient of the Rasahara clinics after having a malignant cyst surgically removed, but deciding not to have a second cyst operated, and to take Rasahara treatment instead. After 9 months treatment over the previous year, his cyst entirely disappeared. For that reason, the patient came for consultation at the Rasahara Kendra Clinics, and started taking the prescribed juices rather than going onto the more powerful, but more costly Dasatinib, Tyrosine Kinase Inhibitor, recommended by the three oncologists.

Further observations of relevance to the case are that: the patient has had depression for which he has taken medication since 2011. He has very responsible work in the Forest Department, which can be overburdening. Due to shortness of time, he has not been willing to comply with the Rasahara Kendra Clinics usual programs of

treatment, additional to the Rasahara, herbal juices, viz: Yoga, and Ayurveda Ahara-Vihara, diet and lifestyle regimes, which are invaluable in maintaining balance in the physiology. Also, for increase in body temperature when over-working, he was advised Kalmegha juice (very bitter), and mud therapy, but declined both.

The patient's physician has hypothesized that the Rasahara supplement has helped to promote the action of the Imatinib prescriptions. However, since all the prescribed herbs in each successive Rasahara prescription are traditionally held to be anti-oncogenic, it should be considered an open question whether the cause of the observed decrease in BCR ABL% was solely due to Imatinib, or whether the Rasahara *dravyas* were also playing active roles. That is yet to be determined, and further studies are needed.

Strengths: the strength of the study is the clear indication of difference between the time line development of the case, for treatment with Imatinib alone compared to Imatinib plus Rasahara. It is also a first case report of Ayurveda integrative oncology.

Weaknesses: Being a single case study, further case studies must be carried out to judge the general effectiveness of this kind of treatment.

Further research: either a case series should be carried out following the protocol of this study, documenting changes in trends with the addition of Rasahara to Imatinib treatment, or a controlled trial, taking into account the ethical need to guarantee patient safety. The actual anti-oncogenic effects of the herbs involved should also be tested for Chronic Myeloid Leukemia.

Declaration of Competing Interests: The first author is the Founder / Owner of the Rasahara Kendra Clinics in the City of Bhopal which provided herbal juices for the study.

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