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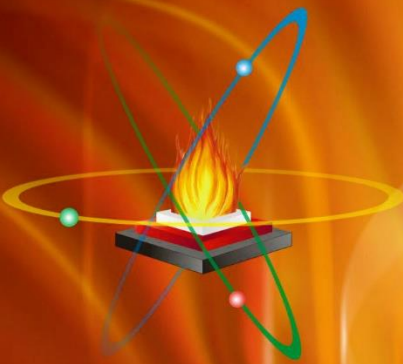
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**Research Article**

# Supportive Care In A Patient With Acute Myeloid Leukemia Through An Integrated Approach Including Yagya Therapy

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**Abstract.** *Background:* Acute myeloid leukemia (AML) is a malignant disease of the hematopoietic system that involves infiltration of blood, bone marrow, and other tissues by poorly differentiated hematopoietic cells. Although several treatment methodologies have been employed for the treatment of AML, complete remission and long-term management of this disease is still not achieved. *Purpose:* As per the classical texts of Ayurveda, the disease that resembles the symptoms associated with malignancy is called Arbuda, and when Rakta (Blood) Dhatu is primarily involved in its manifestation, it is called Raktarbuda, which has associated symptoms of bleeding tendency, anemia, etc. Arbuda may be produced by the vitiation of the three Doshas (i.e. Vata, Pitta and Kapha), and Rakta (blood), Mamsa (muscles) and Medas (fat) Dhatus; hence, treatments, including herbal medicines, that balance these are recommended for the management of the symptoms associated with Arbuda. Yagya Therapy provides pulmonary inhalation of medicinal smoke of multiple herbs (generated through oblation in fire along with chanting of Vedic hymns), which provide therapeutic benefits. The Vedic hymns also contribute to the positive restructuring of the psyche of the patient. *Methods:* A case report about a female patient, who was suffering from symptoms associated with AML, as well as other associated ailments, has been presented in this article. The

patient was prescribed an integrated approach including Yagya Therapy (using an appropriate herbal formulation - hawan samagri), and some other Ayurvedic treatments like decoction of medicinal herbs, Ayurvedic medicines, dietary recommendations, etc. *Results:* Before starting the integrated approach including the Yagya Therapy (prescribed in the present study), the patient had several complaints including bleeding piles, constipation, vomiting, breathlessness, body pain, head-ache, sleeplessness, loss of appetite, weakness, stress, depression; after taking the integrated approach including Yagya Therapy, the complaints of bleeding piles, vomiting, breathlessness were completely resolved; there was about 75% relief in the complaints of constipation, loss of appetite, body pain; and there was notable relief (about 50%) in the remaining complaints as well. Overall, there was definite improvement in the condition of the patient. *Conclusion:* The integrated approach including Yagya Therapy showed encouraging results with regards to the management of symptoms associated with AML, as well as other associated ailments.

**Keywords.** Acute Myeloid Leukemia, Raktarbuda, Arbuda, Yagya Therapy, Ayurveda, Pulmonary Inhalation, Herbal Medicines

## Introduction

Acute myeloid leukemia (AML) is a malignant disease of the hematopoietic system that involves infiltration of blood, bone marrow, and other tissues by poorly differentiated hematopoietic cells (1,2). Although several treatment methodologies have been employed for the treatment of AML, complete remission and long-term management of this disease is still not achieved (2). Hence, there is a definite need to look for safe and effective therapies for patients suffering from AML.

According to Ayurveda, a healthy human body is supposed to have a relatively stable equilibrium (congenial homeostasis) of Dosha (psycho-biological rhythm - Vata, Pitta, Kapha), Dhatu (body tissues) and Mala (excreta) (3-6); Acharya Sushruta defines health as an equilibrium of Dosha (psycho-biological rhythm), Agni (digestion and metabolism), Dhatu (body tissues), Malakriya (excretory function), as well as the well being of soul, senses and mind (3,6). Imbalance in this equilibrium leads to disease, and the aim of the therapy is to restore this balance. Treatment of disease involves procedures for purifying the biological system by removing the vitiated elements from the entire body, and thus causing disease prevention, as well as health promotion (3-7).

As per the classical texts of Ayurveda, the disease that resembles the symptoms associated with malignancy is called Arbuda (Su. Ni. St. 11/13) (3-5,8-12), and when Rakta (Blood) Dhatu is primarily involved in its manifestation, it is called Raktarbuda (3,8), which has associated symptoms of bleeding tendency, anemia, etc. Arbuda may be produced by the vitiation of the three Doshas (i.e. Vata, Pitta and Kapha), and Rakta (blood), Mamsa (muscles) and Medas (fat) Dhatus (Su. Ni. St. 11/14) (3); hence, treatments that balance these are recommended for the management of the symptoms associated with Arbuda (3-5,8-11).

Several herbal medicines have been found to be useful in the treatment of AML; these include: harad

(Terminalia chebula) (13), chitrak (Plumbago zeylanica) (13), devdaru (Cedrus deodara) (13), haridra (Curcuma longa) (13), daruharidra (Berberis species) (13), punarnava (Boerhaavia Diffusa) (13), Salvia miltiorrhiza (Dan Shen) (14), Astragalus membranaceus (Huang Qi) (14), and Spatholobus suberectus (Ji Xue Teng) (14), etc. Some other herbal medicines that may have beneficial effects include: Sadapushpi (Lochnera rosea) (8), Bhallatak (Semecarpus anacardium) (8), Vana Palandu (Urginea indica) (8), etc.

Yagya is an ancient Indian therapeutic procedure (15-28), which is aimed at providing all round well-being of an individual. In the process of Yagya, coarse powder (hawan samagri) made up of dry plant-medicines, as well as selected nutritious and aromatic substances, undergoes transformation into vapor phase, sublimation or decomposition by gradual heating; these phytomedicines spread along with the volatile substances and gases, released by the slow and controlled combustion process in Yagya fire (19). Medicinal phytochemicals, vapors of some essential oils and certain other volatile healthy constituents released in this process impart therapeutic advantage (16,19).

Yagyopathy, with disease-specific herbal preparation, has been shown to be an effective therapy for the treatment of various other physiological and psychological ailments. Raghuvanshi et al. (2009) (19) administered Yagyopathy to 15 patients of pulmonary tuberculosis in the age group of 15-60 years for 35 to 75 days using an anti-tubercular herbal preparation of Ayurvedic plant medicines. The effects were tested by sequential readings on different clinical physiological, microbiological, hematological, biochemical and pathological parameters, and the results showed encouraging healing possibilities of Yagyopathy for pulmonary tuberculosis (15-17,19,21). Batham et al. (2018) (25) showed that Yagya Therapy, as supportive care, can prevent the occurrence of epileptic seizures. Verma et al. (2018) (26) demonstrated the effectiveness of Yagya Therapy in the treatment of Sub-clinical



hypothyroidism (SCH).

Looking at the multiple advantages of Yagya Therapy, which include positive restructuring of the psyche of the participants by the chanting of Vedic hymns (Mantras) and meditating on their meaning, exposure to medicinal-fumes of multiple herbs, as well as their efficient pulmonary administration, Yagya Therapy can be an effective treatment methodology for the management of symptoms associated with AML.

A case report about a female patient, who was suffering from the symptoms associated with AML, is being presented here. Her son visited the Out Patient Section of the Department of Ayurveda and Holistic Health at Dev Sanskriti Vishwavidyalaya, Haridwar for consultancy. In view of the above discussion about the management of symptoms associated with AML, an integrated approach including Yagya Therapy (using an appropriate herbal formulation - hawan samagri), and some other Ayurvedic treatments like decoction of medicinal herbs, Ayurvedic medicines, dietary restrictions, etc. was prescribed to the patient, and the effectiveness of the same is being presented in this article.

### Methods

In the present study, an integrated approach including Yagya Therapy (using an appropriate herbal formulation), and some other Ayurvedic treatments like decoction of medicinal herbs, Ayurvedic medicines, dietary restrictions, lifestyle modifications, etc., was prescribed to a female patient suffering from symptoms associated with AML, as well as other associated ailments.

### Case Report

The son of a 58 year old female patient came to the Out Patient Section of the Department of Ayurveda and Holistic Health (DAHH) at Dev Sanskriti Vishwavidyalaya, Haridwar, in September 2018 for consultancy. The medical history of the patient based on the details provided by patient's representative, as well as followup discussions, is as

follows:

- Patient was suffering from various problems including breathlessness, body pain, sleeplessness, loss of appetite, vomiting, stress, depression, constipation, bleeding piles, weakness, head-ache

Based on the above mentioned medical history and further discussion with the doctor, the current diagnosis for the patient included symptoms associated with AML, as well as other associated ailments.

Blood Test done about 2.5 weeks after the above visit indicated dimorphic anemia (Hb - 4.7g/dl), with leucopenia, with increased percentage of lymphocytes, and reduced platelets.

### Therapeutic Intervention

As mentioned above, the patient was suffering from symptoms associated with AML, as well as other associated ailments. Hence, an integrated approach including Yagya Therapy (using an appropriate herbal formulation), and some other Ayurvedic treatments like decoction of medicinal herbs, Ayurvedic medicines, dietary restrictions, lifestyle modifications, etc., was prescribed for the patient, with the understanding that the patient's representative had come to the Out Patient Section, and the patient would be taking these treatments at her home.

The prescribed therapeutic interventions were as follows:

*Yagya Therapy with Karkatarbuda Nivarak (for treating cancer) hawan samagri (herbal mixture)*

Patient was advised to follow the standard protocol of Yagya at home. The detailed protocol has been described in earlier publications (24,28-32). Briefly, the procedure included:

- Doing Shatkarma for both internal and external purification (Pavitrikaran, Achaman, Shikhavandan, Nyasa - i.e. spiritual practices for purification), Prithvi Pujan (prayers to Mother



Earth), Chandan-dharan (applying sandalwood paste or roli-red powder on forehead), Guru-avahan (invoking the spiritual guide)

- Followed by - 24 oblations of the Karkatarbuda Nivarak hawan samagri (herbal mixture) in the fire (made from dried wood of Goolar tree (*Ficus racemosa*) or Mango tree (*Mangifera Indica*)), along with the chanting of Gayatri Mantra - specifically Surya Gayatri Mantra, i.e. Om Bhoor Bhuvah Swah, Bhaaskaraay Vidmahe, Diwaakaraay Dheemahi, Tannah Sooryah Prachodayaat (21,24,28), with the aim of providing strength and vigor
- Followed by - Pranayama, while sitting near the Yagya

Patient was advised to use hawan samagri prescribed by Department of Ayurveda and Holistic Health (DAHH), Dev Sanskriti Vishwavidyalaya, Haridwar, and ghee (clarified butter made from indigenous cow's milk).

Since past several years, DAHH has been prescribing Yagya Therapy (Yagyopathy), wherein different herbal preparations of Ayurvedic plant medicines (hawan samagri) have been made in-house for various diseases. With regards to the present study, DAHH prescribed a Karkatarbuda Nivarak hawan samagri, which consists of 40 herbs, and is based on the formulation for the same given in reference (24). No metal was used in the herbal preparation. All ingredients were well identified by taxonomist (33), were non-toxic, and could be useful in the treatment of the symptoms associated with AML, as well as other associated ailments (1,24).

Along with the Karkatarbuda Nivarak hawan samagri, patient was also prescribed a common purpose immunity-boosting hawan samagri, based on the formulation for the same given in reference (21,24). Karkatarbuda Nivarak hawan samagri and common purpose hawan samagri had to be mixed in 3:1 ratio (i.e. 30 gm and 10 gm, respectively); 30 gm cow ghee had to be added to this herbal mixture; and

then 24 oblations, along with chanting of Surya Gayatri Mantra, had to be made in the fire with this mixture.

It was advised to do Yagya twice daily at the time of Sunrise and Sunset. The patient was advised to do Yagya Therapy for 3 months.

#### *Drinking decoction of Karkatarbuda Nivarak hawan samagri (herbal mixture)*

Patient was advised to drink the decoction of the Karkatarbuda Nivarak hawan samagri, wherein 20 gm of herbal mixture had to be mixed in 4.5 cups of water; kept overnight; boiled the next morning till 1.5 cup of water was remaining; this had to be divided in two equal parts, and taken empty stomach two times during the day, i.e. in morning and evening.

#### *Ayurvedic medicines*

- Haridradi Churna (polyherbal mixture with Haridra and other herbal medicines, useful in blood purification, etc. (4,5)) - half tablespoon had to be taken twice daily, i.e. in morning and evening
- Gau Arka (distilled cow urine) (has various medicinal properties (3-5,34), which can be useful in symptoms associated with AML) - 10 ml had to be taken with water, once daily, in the morning, empty stomach - for 2 months
- OCEM-5 (extract of five types of tulsi (*Ocimum sanctum*, and others) - panch tulsi - for boosting immunity) - 2 drops had to be taken once daily - for 2 months
- Varunadi Kashayam syrup (source of anti-oxidants, etc. (35)) - 10 ml had to be taken twice daily, i.e. in afternoon and evening, after meal - for 2 months

#### *Dietary advice*

It was advised to eat fruits and vegetables such as Kiwi, Orange, Grapes, Guava, Beetroot, Carrot, Raddish juice, Pomegranate juice (these have various beneficial components including Vitamin C, increase Hemoglobin, etc.)



- Taking commonly available herbal medicines like Turmeric, Giloy (*Tinospora Cordifolia*), Avala (*Emblica Officinalis*), Sadabahar (*Cantharanthus roseus*), Alasi (2 tablespoon in 1 cup water) (for boosting immunity, etc.)
- It was advised to take dry-fruits, such as Anjeer, Kishmish, Khajur (for boosting immunity, etc.)

### Results

In the present case study, the outcomes were assessed in a qualitative (subjective) manner based on the patient's experiential feedback, provided by her representative.

After the initial visit of patient's representative in September 2018, the patient continued with the prescribed integrated approach including Yagya Therapy at her home. A followup was taken from the patient's representative in March 2019, about the present condition of the patient. The feedback provided by the patient's representative is as follows:

- The patient had been doing Yagya twice daily, i.e. in morning and evening
- She had been doing Pranayama for half an hour daily - she used to be in the room, in which Yagya was done, almost the entire day
- She had been drinking the decoction of the prescribed hawan samagri twice a day - morning and evening
- She had been taking the prescribed Ayurvedic medicines, i.e. Haridradi Churna, Gau Arka, OCEM-5, and Varunadi Kashayam - besides this, she had not been taking any other medication or treatment

Blood Test done about 2.5 weeks after the first visit in September 2018, indicated dimorphic anemia (Hb 4.7), with leucopenia, with increased percentage of lymphocytes, and reduced platelets. Another Blood Test was done on the day of the followup in March 2019. There was not much difference in the Blood Report, which again indicated dimorphic anemia (Hb 4.7), with leucopenia, with lymphocytosis, and reduced platelets.

Although, there was not much variation in the Blood parameters, yet the patient had experienced notable relief in various symptoms, and associated ailments, as described below:

- Before starting the integrated approach including the Yagya Therapy (prescribed in the present study), the patient had complaint of bleeding piles; however, at the time of followup, this complaint was completely resolved
- Earlier, the patient had complaint of constipation; at the time of followup this complaint was about 75% resolved
- Earlier, the patient had complaint of breathlessness; at the time of followup this complaint was completely resolved
- Earlier, the patient had complaint of vomiting; at the time of followup this complaint was completely resolved
- Earlier, the patient had complaint of loss of appetite; at the time of followup this complaint was about 75% resolved
- Earlier, the patient had complaint of weakness; at the time of followup this complaint was about 50% resolved
- Earlier, the patient had complaint of body pain; at the time of followup this complaint was about 75% resolved
- Earlier, the patient had complaint of head-ache; at the time of followup this complaint was about 50% resolved
- Earlier, the patient had complaint of sleeplessness; at the time of followup this complaint was about 50% resolved
- Earlier, the patient had complaints of stress and depression; at the time of followup these complaints were about 50% resolved
- Overall, there was definite improvement in the condition of the patient

### Discussion

The present study illustrates the potential of an integrated approach including Yagya Therapy for the management of symptoms associated with AML,



and other associated ailments.

According to Ayurveda, a healthy human body is supposed to have a relatively stable equilibrium (congenial homeostasis) of Dosha (psycho-biological rhythm - Vata, Pitta, Kapha), Dhatu (body tissues) and Mala (excreta) (3-6); Acharya Sushruta defines health as an equilibrium of Dosha (psycho-biological rhythm), Agni (digestion and metabolism), Dhatu (body tissues), Malakriya (excretory function), as well as the well being of soul, senses and mind (3,6). Imbalance in this equilibrium leads to disease, and the aim of the therapy is to restore this balance. Treatment of disease involves procedures for purifying the biological system by removing the vitiated elements from the entire body, and thus causing disease prevention, as well as health promotion (3-7).

As per the classical texts of Ayurveda, the disease that resembles the symptoms associated with malignancy is called Arbuda (Su. Ni. St. 11/13) (3-5,8-12), and when Rakta (Blood) Dhatu is primarily involved in its manifestation, it is called Raktarbuda (3,8), which has associated symptoms of bleeding tendency, anemia, etc. Arbuda may be produced by the vitiation of the three Doshas (i.e. Vata, Pitta and Kapha), and Rakta (blood), Mamsa (muscles) and Medas (fat) Dhatus (Su. Ni. St. 11/14) (3); hence, treatments that balance these are recommended for the management of the symptoms associated with Arbuda (3-5,8-11).

In Yagya Therapy, the hawan samagri (mixture of medicinal herbs) contained herbs, which were chosen based on careful review of Ayurvedic pharmacology, modern pharmacology, and scriptural indications. The beneficial properties of some of the herbs with regards to the management of symptoms associated with AML, as well as other associated ailments, are as follows: Haridra (*Curcuma longa*), Sharapunkha (*Tephrosia purpurea*), Neem (*Azadirachta indica*), Tulsi (*Ocimum Sanctum*) have Raktashodhaka (blood purifying) properties (33,36). Haridra, Tulsi, Bharangi (*Clerodendrum*

*Serratum*) have Kapha-har (pacifying) properties (33,36). Haridra, Tulsi, Bharangi have Vata-har (pacifying) properties (33,36). Daruharidra (*Berberis* species) have Pitta-virechak (eliminate excess Pitta) properties (33,36). Kanchnar (*Bauhinia variegata*) has Rakta-Pitta-har (pacifying) properties (33,36). Giloy (*Tinospora Cordifolia*), Makoy (*Solanum nigrum*) have Tridosha Shamak (pacify all the three Doshas) properties (33,36). Guggulu (*Balsamodendron Mukul*) is useful in Arsha (piles) (33,36). Kanchnar, Daruharidra, Makoy, Neem, Giloy have Rasayan (provide rejuvenation and nourishment to the body tissues) properties (33,36). Yashtimadhu (*Glycyrrhiza glabra*), Daruharidra, Giloy have Balya (provide strength) properties (33,36). Chitrak (*Plumbago zeylanica*) has Deepan Pachan properties (33,36); Deepan Pachan drugs are administered for enhancing the digestive fire (37,38) and digestion of the ama dosha (undigested toxins of the body that are responsible for the blockage of micro-channels).

Thus, the ingredients of hawan samagri have properties of balancing the above mentioned Doshas and purification of Dhatus, helping in the management of various symptoms associated with AML and other associated ailments, as well as providing rejuvenation and nourishment to the body tissues. Their vapors can be useful in the management of symptoms associated with AML, as well as other associated ailments (24,33,36).

Patient took the decoction of the Karkatarbuda Nivarak hawan samagri, twice daily. As described above, the ingredients of the Karkatarbuda Nivarak hawan samagri have properties of balancing the above mentioned Doshas and purification of Dhatus, helping in the management of various symptoms associated with AML and other associated ailments, as well as providing rejuvenation and nourishment to the body tissues. Thus, the decoction of the hawan samagri must have provided these therapeutic benefits as well.

Besides, the other contributing factors for benefits of Yagya Therapy are nasal administration of herbs,



use of ghee, use of mantras, advantage of fire, creation of healthy air and environment, role of pranayam, etc. These factors and their mechanistic roles are previously described in details (39-40).

The ayurvedic medicines prescribed to the patient had various medicinal properties such as blood purification, immunity boosting, etc. which are useful in the management of symptoms associated with AML, as well as other associated ailments.

### Conclusion

Before starting the integrated approach including the Yagya Therapy, the patient had several complaints including bleeding piles, constipation, vomiting, breathlessness, body pain, head-ache, sleeplessness, loss of appetite, weakness, stress, depression; after taking the integrated approach including Yagya Therapy, the complaints of bleeding piles, vomiting, breathlessness were completely resolved; there was about 75% relief in the complaints of constipation, loss of appetite, body pain; and there was notable relief (about 50%) in the remaining complaints as well. Overall, there was definite improvement in the condition of the patient. Thus the present study shows encouraging results with regards to the effectiveness of the integrated approach including Yagya Therapy in the management of symptoms associated with AML, as well as other associated ailments.

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### Compliance with ethical standards

Informed consent was obtained from the patient's representative (son).

### Conflict of interest

The authors declare that they have no conflict of interest.

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