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ROLE OF HOMOEOPATHY IN LEUKEMIA: AN UPDATED HOLISTIC REVIEW

Deepak Kumar[1], Rupali Bhaduri[2], Patranu Parui[3], Anik Dey[1], Prashanta Hembrom[1], Debmoy Nandi[3]

[1]Post Graduate Trainee, Department of Practice of Medicine, The Calcutta Homoeopathic Medical College & Hospital, West Bengal, India

[2]Associate Professor and HOD, Department of Practice of Medicine, The Calcutta Homoeopathic Medical College & Hospital, West Bengal, India

[3]Post Graduate Trainee, Department of Paediatrics, The Calcutta Homoeopathic Medical College & Hospital, West Bengal, India

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Abstract

Leukemia is a common malignancy in children and adults that occurs when alterations in normal cell regulatory processes cause uncontrolled proliferation of hematopoietic stem cells in the bone marrow. It is a clonal proliferation of hematopoietic stem cells in the bone marrow. The four broad subtypes most likely to be encountered by primary care physicians are acute lymphoblastic, acute myelogenous, chronic lymphocytic, and chronic myelogenous. Acute lymphoblastic leukemia occurs more often in children, whereas the other subtypes are more common in adults. This review summarizes the epidemiology, pathophysiology, clinical presentation, diagnosis, and conventional management of leukemia, and provides an updated overview of homoeopathic philosophy, miasmatic understanding, reportorial guidance, therapeutic indications, and available research related to leukemia. When it comes to providing a secure and efficient method of treating leukemia, homoeopathy can be a crucial component of integrative medicine.

Keywords: Leukemia, Blood cancer, Homoeopathy.

***Corresponding Author**
Dr. Deepak Kumar

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Introduction

Leukemia (from the Greek *leukos*, meaning "white," and *haima*, meaning "blood") comprises a heterogeneous group of hematopoietic stem cell malignancies characterized by genetic abnormalities that lead to clonal proliferation. These malignancies are classified based on the lineage of the affected hematopoietic cell-lymphoid or myeloid-and the disease course, either acute or chronic.

Leukemia is the most prevalent cancer in children under 15 years of age, with Acute Lymphoblastic Leukemia (ALL) being the most common subtype, accounting for approximately 77% of paediatric leukemia cases. In contrast, Chronic Lymphocytic Leukemia (CLL) is the predominant form in adults, representing about 30% of all leukemia cases in the United States.

The unchecked proliferation and reduced apoptosis of malignant cells impair normal haematopoiesis, potentially leading to bone marrow failure. Clinical presentation, diagnostic criteria, laboratory findings, and therapeutic strategies vary significantly depending on the leukemia subtype.

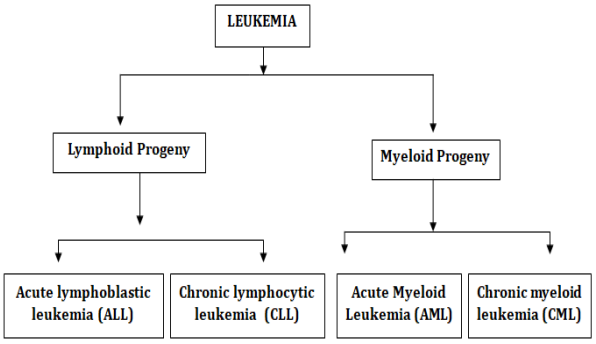
Etiology

Multiple genetic and environmental risk factors contribute to the development of leukemia:

- Ionizing radiation exposure is associated with an increased risk of several leukemia subtypes, particularly in individuals exposed during childhood or at high doses [1,2]
- Benzene exposure is a known risk factor for adult leukemia, with a strong association particularly with acute myeloid leukemia (AML) [3].
- Prior chemotherapy treatment, especially with alkylating agents and topoisomerase II inhibitors, significantly increases the risk of secondary acute leukemia [1,2].

- A history of hematologic malignancies raises the likelihood of developing another subtype of leukemia later on [4].
- Viral infections, such as *human T-cell leukemia virus* (HTLV-1) and *Epstein-Barr virus* (EBV), have been implicated in certain subtypes of acute lymphoblastic leukemia (ALL) [5].
- Inherited genetic syndromes, including *Down syndrome*, *Fanconi anemia*, *Bloom syndrome*, and *Li-Fraumeni syndrome*, are strongly associated with an increased risk of both AML and ALL [6].

Classification [7-12].



Combining the classifications of acute vs. chronic and lymphocytic vs. myelogenous, leukemia is grouped into four main categories:

1. **Acute Lymphoblastic Leukemia (ALL)**
   - Rapid progression involving immature lymphoid cells
   - Most common in children, but can also occur in adults
   - Requires immediate treatment due to fast progression
2. **Acute Myeloid Leukemia (AML)**
   - Rapid progression involving immature myeloid cells
   - More common in adults, but can occur at any age
   - Also requires immediate treatment
3. **Chronic Lymphocytic Leukemia (CLL)**
   - Slow progression involving mature-looking but abnormal lymphocytes
   - Primarily affects older adults
   - May be monitored before initiating treatment
4. **Chronic Myeloid Leukemia (CML)**
   - Slow progression involving abnormal myeloid cells
   - Mostly affects adults
   - Often associated with a specific genetic abnormality (Philadelphia chromosome)

Sign and Symptoms [13]

Common Signs and Symptoms of Leukemia:

- Fatigue or tiring easily
- Fever or night sweats
- Frequent infections
- Shortness of breath
- Pale skin
- Unexplained weight loss
- Bone or joint pain or tenderness
- Pain or a full feeling under the ribs (especially on the left side, due to spleen enlargement)
- Swollen lymph nodes in the neck, underarm, groin, or stomach
- Enlarged spleen or liver
- Easy bruising and bleeding, including:
  - Nosebleeds
  - Bleeding gums
  - Petechiae (rash of tiny red spots in the skin)
  - Purplish or darkened skin patches

Epidemiology [14]

- **Incidence**: ~474,000 new cases annually worldwide (as of GLOBOCAN 2020)
- **Mortality**: ~311,000 deaths per year globally
- **Geographic distribution**:
  - Higher incidence in high-income countries (especially CLL)
  - Certain types (like ALL) more common in children, especially in developed nations
  - AML is more common in adults, particularly the elderly

Diagnosis [15-17]

The most common tests that should be done to diagnose leukemia include a complete blood count, comprehensive metabolic panel, liver function tests, and coagulation panel, which are often followed by a peripheral blood smear evaluation and a bone marrow biopsy and aspiration. In some situations, leukemia can be diagnosed by histology alone such as acute myeloid leukemia can be diagnosed by the presence of Auer rods on a peripheral smear

Treatment of Leukemia [18-20]

Treatment strategies for leukemia depend primarily on the cell lineage involved and whether the disease is acute or chronic.

In acute leukemia, the standard approach is systemic chemotherapy, with specific drugs selected based on the leukemia subtype. In cases with a poor prognosis or severe progression, stem cell transplantation may be considered to improve outcomes.

For chronic leukemia, treatment is typically initiated only when patients show signs of disease progression, such as declining platelet or red blood cell counts. Patients with chronic B-cell leukemia may benefit from targeted therapies using anti-B-cell antibodies like rituximab, which are less toxic than conventional chemotherapy.

In chronic myeloid leukemia (CML), a hallmark genetic abnormality-the Philadelphia chromosome-produces an

abnormal tyrosine kinase protein. This makes the leukemia cells particularly responsive to tyrosine kinase inhibitors (TKIs) such as imatinib, dasatinib, and nilotinib, which are highly effective in controlling the disease.

Prognosis and Treatment Outcomes

The success of leukemia treatment depends on several factors, including the type of leukemia, the person's age, and the availability of medical resources. Overall, treatment outcomes have significantly improved in the developed world In the United States, the average five-year survival rate is around 65% [21]. Among children under 15, this rate is even higher-ranging from 60% to 85%, depending on the leukemia subtype [22]. For children with acute leukemia who remain cancer-free for five years, the likelihood of recurrence is very low [22].

Several additional factors influence prognosis:

- Whether the leukemia is acute or chronic
- The specific abnormal white blood cell type
- The presence and severity of anemia or thrombocytopenia
- The degree of tissue involvement or organ infiltration
- The extent of metastasis, including lymph node and bone marrow involvement
- Access to effective therapies
- The experience and expertise of the healthcare team

Patients generally have better outcomes when treated at specialized centres with more experience in managing leukemia [23].

Complication

1. **Tumor Lysis Syndrome (TLS)**: Tumor lysis syndrome occurs when cancer cells break down rapidly, often as a side effect of chemotherapy. This sudden cell destruction releases large amounts of intracellular contents into the bloodstream, overwhelming the kidneys. The result is dangerously high serum levels of potassium, phosphorus, and uric acid, which can lead to acute kidney injury and metabolic imbalances [24].
2. **Disseminated Intravascular Coagulation (DIC)**: DIC is a condition in which the body's normal blood clotting mechanisms become dysregulated. It causes both abnormal clotting (thrombosis) and excessive bleeding (haemorrhage). DIC is most commonly associated with acute promyelocytic leukemia, but it can also occur in other leukemia subtypes [25].
3. **Secondary Cancers**: Leukemia survivors face an increased risk of developing secondary malignancies later in life. This risk may be related to prior chemotherapy, radiation exposure, or underlying genetic factors [26].
4. **Infections**: The immunosuppression caused by leukemia, chemotherapy, or stem cell transplantation significantly raises the risk of serious infections. These infections can be life-threatening and often require prompt medical intervention [27].

Homoeopathic Approach to a Case of Leukaemia [28].

Individualization is the foundation of homoeopathic prescribing. It means treating the patient as a unique totality, not treating the disease name. Hahnemann emphasizes this throughout the Organon: *The individualizing examination of a disease case is the most important task of the physician.* Totality of symptoms includes: Location, Sensation, Modalities, Concomitants, Mental and emotional state, General symptoms (sleep, appetite, temperature, sweat, stool), Past history, Miasmatic background along with more striking, singular, uncommon and peculiar which is also known as characteristics symptoms.

In Repertory of Homoeopathic Materia Medica by Dr. J T Kent we have found direct rubric for Leukemia. In Generalities chapter Which covers [29]:

- 1st grade drugs are *Natrum ars* and *Natrum sulph*
- 2nd grade drugs are *Calcarea carb, Calc Phos, Carbo Veg, China, Kali Phos, Natrum mur, Natrum phos, Picric acid*
- 3rd grade drugs are *Acetic acid, Arsenic, Carboneumsulph, Crot horridus, Nux vom, Sulph, Thuja*

In "A Concise repertory of Homoeopathic medicines" by Dr S R Pathak we found under LEUKEMIA [30]:

- *Ars, Ars-i, Bar-i, Bar-m, Benz, Nat-ar, Nat-m, Nat-s, Phos, Pic-ac, Thuj*

In "Homoeopathic Medical Repertory" by Dr Robin Murphy's repertory we found [31]:

Cancer, Leukemia, Blood:

- **1st grade drugs are**: *Natrum Ars, Arsenic*
- **2nd Grade Drugs Are**: *Carcinocin, Ceanothus, Hecla leva, Natrum sulph,*
- **3rd Grade Drugs Are**: *Aranea, Arsenic iod, Calcarea carb, Calcarea phos, Carboneumsulph, China, Crotalus horridus, Ferrum pic, Kali phos, Natrum mur, Natrum phos, Phytolacca, Picric acid, Scirrhinum, Sepia, Strontium carb, Symphytum, X- ray*
- **4th Grade Drugs Are**: *Acet-ac, Acon, Apis, Bar-i, Bar-m, Benz, Benzin, Bry, Calc-ar, Carb-v, Chin-s, Cit-l, Coca, Con, Cortiso, Ergot, Ferr-p, Hell, Ip, Kali-hp, Kali-s, Kreos, Lepro, Med, Merc, Mur-ac, Nit-ac, Nux-v, Op, Phos, Querc, Rad-br, Rhus-t, Rib-ac, Saroth, Sil, Succ, Sul-ac, Sulfa, Sulph, Syph, Thuj, Tub*

Lymphoma, Lymphatic Glands, Cancer: Lymphoid Leukemia [31].

- **Ars**, *Ars-i*, Carb-v, Carbn-s, **Cean**, Kali-s, Mur-ac, Nat-ar, Nat-m, **Phyt**, Pic-ac, Thuja

H.A Roberts view on Leukemia:The homoeopathic perspective proposes different therapeutic approaches depending on whether organic glandular changes are present. In functional cases without structural damage, Picric acid is suggested due to its ability to induce

"artificial leucocythemia." Where splenic or lymphatic enlargement exists, treatment follows Grauvogl's concept of the sycotic constitution, characterized by excess water in the blood, mucous overproduction, and worsening in cold, damp conditions. Remedies such as *Thuja, Aranea diadema, Nux vomica, Ipecacuanha, Natrum sulphuricum, and Natrum muriaticum are highlighted* [32].

Few Homoeopathic Therapeutics

- ***Kali Phos***: Anaemia or leukemia, caused by long lasting mental depression, poverty of blood from continuous influences depressing mind or nerves.Too rapid decay of blood corpuscles [33].
- ***Benzene*****:** In the human provers it resulted in a decrease of the red and increase of white cells [34].
- ***Arsenic Album*****:** Extreme prostration, rapid anaemia, emaciation. Hemorrhages: dark, thin, persistent oozing. Restlessness, anxiety, burning pains. Degenerative blood states; septic conditions [35].
- ***Crotalus Horridus*****:** Severe blood dyscrasia. Hemorrhages of dark, fluid blood, oozing continuously. Jaundice with bleeding tendency. Septic state, trembling, profound weakness. Skin: petechiae, purpura, ecchymoses [35].
- ***Lachesis Mutus*****:** Glandular involvement: swollen lymph nodes, tender, purplish. Septicemia, low-grade fever, prostration. Hemorrhage: dark, decomposed blood. Cannot tolerate pressure; worse after sleep. Loquacity, flushing, congestion [35].

Discussion

Leukemia encompasses a group of clonal hematologic malignancies characterised by uncontrolled proliferation of abnormal white blood cells in bone marrow and blood, leading to bone marrow failure and organ infiltration. The major clinical categories can be distinguished by cell lineage, maturation stage and tempo of disease. Its management today is dominated by evidence-based conventional therapies such as chemotherapy, targeted therapy, immunotherapy, and stem cell transplantation. Chemotherapy is the mainstay of treatment for the majority of acute leukemias and many chronic types, and leukemia care in modern medicine is risk-adapted and protocol-driven.

Cancer patients, notably those with hematologic malignancies, frequently employ homoeopathy as a supplemental treatment, especially in nations where it is deeply ingrained in conventional medicine. Published homoeopathic literature on leukemia largely consists of case reports, small case series and uncontrolled observational studies, sometimes claiming substantial or even complete responses with individualized remedies.[36]Some leukemia patients use homoeopathy, usually as an adjuvant to normal therapy for symptom alleviation and perceived quality-of-life advantages. However, there is currently very few scientific evidence to support homoeopathy as a curative or stand-alone treatment for leukemia.

Conclusion

Homoeopathy can play key role as integrative medicine in offering safe and effective way of managing leukemia and to combat the side effects of conventional therapy when applied through a constitutional, miasmatic, and individualized approach. It may also be helpful to reduce the days of hospitalisation and can significantly improve therapy outcomes as well as patient's quality of life. Further research in this area is required to ascertain the efficacy of constitutional homoeopathic adjuvant therapy in such cases.

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