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## Malignancy: Where is the hope, *Ayurveda* or allopathy; A critical review

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**Abstract:** Cancer is the most widespread and deadly disease that is on the rise nowadays as a result of our way of life. Cancer is curable if it is diagnosed at an early stage, which means cancer without metastasis. There are a number of treatments available now in allopathy, like chemotherapy, radiation therapy and immunotherapy. But these therapies like chemotherapy, target cells that are dividing rapidly. These cells have a high rate of growth and multiplication. They are cells of the bone marrow, hair, epithelial lining, reticuloendothelial system and gonads. So, we need an *Ayurvedic* approach to combat these complications. Here we critically analyze which therapy opted for malignancy.

**Keywords:** Cancer, Allopathy, *Ayurvedic*.

## 1. INTRODUCTION

Cancer poses a substantial economic burden on the global economy and has become the third leading cause of death worldwide. Projections indicate that by the year 2030, there will be 26 million new cases of cancer and 17 million cancer-related deaths annually.<sup>[1]</sup> Developing nations are disproportionately affected by cancer, with 56% of new cases and 75% of deaths attributed to these regions in 2008 <sup>[2]</sup>. These fatalities occur in countries with limited or no access to treatment and low per capita healthcare expenditure.

The most prevalent solid organ malignancies arise in the lungs, breast, and gastrointestinal tract, but skin cancer is the most common type globally. Cigarette smoking is responsible for over 20% of all global cancer deaths, including 80% of male lung cancer cases and 50% of female lung cancer cases worldwide, which could be prevented through smoking cessation.<sup>[3]</sup> Diet and alcohol consumption contribute to an additional 30% of cancers, including stomach, colon, oesophagus, breast, and liver cancers.<sup>[4]</sup> These risks could be reduced through lifestyle changes such as avoiding animal fats and red meat, reducing alcohol intake, increasing fiber, fresh fruit, and vegetable consumption, and preventing obesity. Infections account for another 15% of cancers, including cervix, stomach, liver, nasopharynx, and bladder cancers, and some of these could be prevented through infection control and vaccination.<sup>[5]</sup> The development and progression of cancer involve a complex, multistep process characterized by sequential gene mutations leading to the formation of cancerous cells. To initiate carcinogenesis successfully, cells require specific characteristics collectively known as the hallmarks of cancer. These ten hallmarks of cancer include <sup>[6]</sup>:

(1). Genome instability and mutation, (2). Resisting cell death (apoptosis, autophagy and necrosis), (3). Sustaining proliferative signaling (cell cycle, cell cycle regulation and stimulation of the cell cycle), (4). Evading growth suppressors, (5). Enabling replicative immortality, (6). Inducing angiogenesis, (7). Activating invasion and metastasis, (8). Reprogramming energy metabolism, (9). Tumour-promoting inflammation, (10). Evading immune destruction.

## 2. TYPES AND CLASSIFICATION

**Two Types:** The word cancer is derived from the Greek word “crab,” as a crab moves fast in all directions <sup>[7]</sup>. Cancer lacks capsules that send “legs” into surrounding tissue; the word cancer means “crab” based on these legs. Cancer is a large group of diseases that are characterized by cellular malfunction. Healthy cells are programmed to “know what to do and when to do it”. Cancerous cells do not have this programming and therefore grow and replicate out of control, which means uncontrolled, abnormal cell growth. They also serve no physiological function. These cells are now termed a neoplasm. Neoplasia means new, uncontrolled, uncoordinated growth that is not under physiological control. This neoplastic mass often forms a clump of cells known as a tumor. A normal cell turns into a cancer cell because of mutations in DNA, which can be acquired or inherited. Cancer arises as a result of a series of genetic and epigenetic changes, the main genetic lesions being due to:

1. The inactivation of tumor suppression genes; 2. The activation of oncogenes <sup>[8]</sup>.

Several human malignancies are associated with viruses, e.g., cervical cancer due to HPV, Hepatocellular carcinoma due to hepatitis B and C viruses, and Epstein-Barr virus-caused B cell cancer like Burkitt

lymphoma and HTLV1 (Human T-cell leukemia virus type 1) cause T-cell leukemia.<sup>9</sup> Several human malignancies are associated with viruses, e.g., cervical cancer due to HPV, Hepatocellular carcinoma due to hepatitis B and C viruses, and Epstein-Barr virus-caused B cell cancer like Burkitt lymphoma and HTLV1 (Human T-cell leukemia virus type 1) cause T-cell leukemia.<sup>[9]</sup>

<b>Benign Tumours</b> (non-cancerous)	<b>Malignant Tumours</b> (cancerous)
1. well-defined capsule	Not encapsulated
2. does not infiltrates, invades or metastasis	Metastasis (spread via lymph and blood)
3. pleomorphism – not	Highly
4. anaplasia – not	High
5. angiogenesis – usually not	High
6. differentiation well, resemble the normal cell, but can't control cell proliferation	Poorly differentiated, autonomously proliferate rapidly and can continue to mutate
7. Rate of growth – slow	High due to loss of contact inhibition
8. Nuclear cytoplasmic ratio - 1;4, 1;6	1:1
9. Escape apoptosis (programmed cell death) – not	High
10. mitotic rate – normal	High mitotic index
11. hardly damage nearby organ by compressing them but not spread	Not only damage nearby organ by compressing them but also spread though it

**Cancer is named based on its origin:** Those derived from epithelial tissues are called carcinomas, mesenchymal or connective tissue origin sarcomas, hematopoietic tissue origin leukemias, lymphomas and plasma cell dyscrasias (including multiple myeloma), adenocarcinomas arising from glandular tissue, and melanocytes-derived melanomas. Central nervous system cancers that begin in the tissues of the brain and spinal cord.

Cancer in situ is localized and preinvasive; it has not crossed the basement membrane. Treatment can usually eliminate the cancer without recurrence. Preinvasive cervical cancer (stage zero cancer in situ) is nearly 100% curable.

### 3. MANAGEMENT OF MALIGNANCY

#### 3.1. Allopathic Approach:

##### (A). Drug Therapy

(i). **Chemotherapy**<sup>[10]</sup>: drugs are used to mop up any residual malignant cells (micro-metastasis) after surgery or radiotherapy. This is routinely employed now.

##### *Classification of cytotoxic drugs:*

- **Alkylating agents:** These agents have cytotoxic and radiomimetic (like ionizing radiation) actions. Many are cell cycle-non-specific, i.e., act on dividing as well as resting cells. Some have CNS stimulant and cholinergic properties. Drugs are - mechlorethamine, cyclophosphamide,

ifosfamide, chlorambucil, melphalan, Thio-TEPA, busulfan, nitrosoureas, and dacarbazine (DTIC).

- **Antimetabolites:** methotrexate (Mtx), mercaptopurine (6-MP), thioguanine (6-TG), azathioprine, fludarabine, fluorouracil (5-FU), cytarabine
- **Vinca alkaloids:** These are mitotic inhibitors; they bind to the microtubular protein 'tubulin', prevent its polymerization and assembly of microtubules, cause disruption of mitotic spindle, and interfere with cytoskeletal function. When the chromosomes fail to move apart during mitosis, metaphase arrest occurs. They are cell cycle specific and act in the mitotic phase. Drugs are Vincristine (oncovin) and vinblastine.
- **Antibiotics:** These are products obtained from microorganisms and have prominent anti-tumour activity. Practically all of them intercalate between DNA strands and interfere with its template function. Drugs are - Actinomycin D (Dactinomycin), doxorubicin, daunorubicin (rubidomycin), mitoxantrone, bleomycins, and mitomycin C.

**(ii). Complications:** Chemotherapy targets cell that are dividing rapidly. It cannot distinguish between normal cells and cancer cells. Healthy cells which have high rate of growth and multiplication include cells of the normal bone marrow, hair, epithelial lining, reticuloendothelial (RE) system and gonads.

- Bone marrow depression,
- Lymphoreticular tissue: suppression of cell mediated as well as humoral immunity, due to which susceptibility of all infection is increased.
- Oral cavity: stomatitis, bleeding gums, xerostomia
- Skin: alopecia, dermatitis
- Gonads: oligozoospermia and impotence in male; inhibition of ovulation and amenorrhea are common in females; damage to the germinal cells may result in mutagenesis.
- Foetus : abortion, foetal death, teratogenesis
- Carcinogenicity: secondary cancers, especially leukemias, lymphomas and histocytic tumours, appear with greater frequency many years after the use of cytotoxic drugs.
- Hyperuricemia: this is secondary to massive cell destruction (uric acid is a product of purine metabolism). Gout and urate stones in the urinary tract may develop.
- In addition to these general toxicities, individual drugs may produce specific adverse effects, e.g., neuropathy by vincristine, cardiomyopathy by doxorubicin, cystitis and alopecia by cyclophosphamide.

**(iii). Hormones:** Selective estrogen receptor modulators - tamoxifen in breast cancer after surgery and radiation

**(iv). Antibodies:** Herceptin, avastin

**(B). Immunotherapy** <sup>[11]</sup>: Stimulating the patient's immune system profoundly can sometimes change the course of a malignancy, and the discovery of interferons served as a significant catalyst for extensive research. While solid tumors don't show much improvement with interferons, they exhibit activity against

melanoma and lymphoma. There is evidence suggesting that interferons can be advantageous as supplementary treatments (post-surgery and after chemotherapy) to delay recurrence. Whether interferon-induced immune system stimulation can completely eliminate microscopic disease remains unverified. More potent agents like IL-2 can induce more robust immune responses, but their systemic toxicity poses a persistent challenge. One notable example of successful immunotherapy is rituximab, an antibody targeting the common B-cell antigen CD20. When combined with chemotherapy, it enhances complete response rates and prolongs survival in diffuse large cell non-Hodgkin lymphoma. It also effectively alleviates advanced follicular non-Hodgkin lymphoma.

**(C). Radiotherapy** <sup>[12]</sup>: Success depends on the difference in radiosensitivity between tumour and the normal tissue. It involves the administration of ionizing radiation in the form of x-ray or gamma rays to the tumour site. Method of delivery: external beam (teletherapy) and internal beam therapy (Brachytherapy). Internal radiation treatment achieved by implanting radioactive material directly into the tumour or very close to it. Prefix “brachy” from Greek for “short range”.

Why brachytherapy

- Delivering the high dose of radiation to the tumour
- Sparing of the surrounding normal tissues
- Delivered in a short period of time
- Limited to localized tumours

Teletherapy involves delivery of therapeutic radiation from a source that is placed away from the body.

Radiation therapy is planned and performed by a team of nurses, dosimetrists, physicians and radiation oncologists. It is usually delivered in fractionated doses such as 180-300 cGy per day, 5 times a week, for a total course of 5-8 weeks.

**Dose:** The amount of radiation used in photon radiation therapy is measured in gray (Gy), a unit of absorbed radiation equal to the dose of one joule of energy absorbed per kilogram in matter, or 100 rads. For curative cases, the typical dose for a solid epithelial tumour range from 60-80 Gy, while lymphomas are treated with 20-40 Gy.

**Complications:** Fatigue, local skin reactions, GI toxicity, oropharyngitis, mucosities, xerostomia, and myelosuppression. Radiation therapy is known to be mutagenic, carcinogenic and teratogenic, with an increased risk of developing both secondary leukemia and solid tumours.

**(D). Surgery:** The most important determinant of a successful surgical therapy are the absence of distant metastases and no local infiltration.

**(E). Palliative Care:** WHO describes palliative care as “an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, whether physical, psychological, social or spiritual, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems.”

**(F). Rehabilitation:** The goal of cancer rehabilitation is to help patients return to the highest level of function and independence possible, while improving the overall quality of life-physically, emotionally, and socially. These goals are often met by

- Managing pain, nausea, pleural effusions
- Improving bowel and bladder function
- Improving nutritional status
- Improving physical conditioning, endurance, and exercise performance
- Improving social, cognitive, emotional, and vocational status
- Reducing hospitalization
- Alopecia – artificial approach

### 3.2. Ayurvedic Approach:

#### (A). Drug Therapy:

<i>Dravya Name</i>	<i>Indication</i>	<i>Reference</i>
1. <i>Sandpushpa</i>	<i>Raktarbuda</i>	<i>Prof. P.V. Sharma</i> <sup>[13]</sup>
2. <i>Vantrapushi</i>	<i>Raktarbuda</i>	<i>Prof. P.V. Sharma</i>
3. <i>Kanchnar Guggulu</i>	<i>Arbuda</i>	<i>Sharangdhar</i> <sup>[14]</sup>
4. <i>Poi, Kanji &amp; Takra: grind and mix with Sandhava – Upnaha</i>	<i>Arbuda</i>	<i>Y.R.</i> <sup>[15]</sup>
5. <i>Nichuladi Lepa</i>	<i>Arbuda</i>	<i>B.R.</i> <sup>[16]</sup>
6. <i>Sarshapadi Lepa</i>	<i>Arbuda</i>	<i>B.R.</i>
7. <i>Matrivahakeet Lepa</i>	<i>Arbuda</i>	<i>B.R.</i>
8. <i>Arbudahara Lepa</i>	<i>Arbuda</i>	<i>B.R.</i>
8. <i>Medoarbudahara Lepa</i>	<i>Arbuda</i>	<i>B.R.</i>
9. <i>Raudra Ras</i>	<i>Arbuda</i>	<i>B.R.</i>
10. <i>Kanchnar Gudika</i>	<i>Arbuda</i>	<i>B.R.</i>
11. <i>Nityanand Ras</i>	<i>Arbuda</i>	<i>Rasachintamani</i> <sup>[17]</sup>
12. <i>Mahisdandkshara Vati</i>	<i>Arbuda</i>	<i>Rasachintamani</i>
13. <i>Raudra Ras</i>	<i>Arbuda</i>	<i>Rasachintamani</i>
14. <i>Vridhhi Nashan Rasa</i>	<i>Arbuda</i>	<i>Rasatantrasaar,</i> <sup>[18]</sup> <i>Siddha Yog Sangraha</i> <sup>[19]</sup>
15. <i>Vridhhihari Vatika.</i>	<i>Arbuda</i>	<i>Rasatantrasaar, Siddha Yog Sangraha</i>
16. <i>Galgandhar Lepam</i>	<i>Arbuda</i>	<i>Rasatantrasaar, Siddha Yog Sangraha</i>
17. <i>Kansargajkesari Vati</i>	<i>Arbuda</i>	<i>Rasatantrasaar, Siddha Yog Sangraha</i>
18. <i>Arkakeshwar Rasa</i>	<i>Arbuda</i>	<i>Rasatantrasaar, Siddha Yog Sangraha</i>

#### (B). Immunotherapy (*Panchakarma and Rasayana Chikitsa*):

*Acharya Sushruta mentioned Upnaha and Nadi Sweda in Vata Arbuda. Lepa, Mrdu Sweda, Upnaha and Virchen in Pitta Arbuda. Lepa, and Vaman in Kaph Arbuda.*

According to *Acharya Sushruta*,

### 1. Vata Arbuda Chikitsa

कर्कारुकरैर्वारुकरिकेलप्रियालपञ्चाङ्गुलबीजचूर्णैः ॥२९॥

वातार्बुदं क्षीरघृताम्बुसिद्धैरुष्णैः सतैलैरुपनाहयेत् ॥

कुर्याच्च मुख्यान्युपनाहनानि सिद्धैश्च मांसैरथ वेसवारैः ॥३०॥

स्वेदं विदध्यात् कुशलस्तु नाड्या शृङ्गेण रक्तं बहुशो हरेच्च ॥

वातघ्ननिर्युहपयोम्लभागैःसिद्धं शताख्यं त्रिवृतं पिबेद्वा ॥३१॥(Su. Chi. 18/29-31)<sup>[20]</sup>

### 2. Pitta Arbuda Chikitsa

स्वेदोपनाहा मृदवस्तु कार्याः पित्तार्बुदे कायविरचनं च ॥

विघृष्य चोदुम्बरशाकगोजीपत्रैर्भृशं क्षौद्रयुतैः प्रलिम्पेत् ॥३२॥

श्लक्ष्णीकृतैः सर्जरसप्रियङ्गुपत्तङ्गरोध्राञ्जनयष्टिकाह्वैः ॥

विस्त्राव्य चारम्बधगोजिसोमाः श्यामा च योज्या कुशलेन लेपे ॥३३॥

श्यामागिरिह्वाञ्जनकीरसेषु द्राक्षारसे समलिकारसे च ॥

घृतं पिबेत् क्लीतकसम्प्रसिद्धं पित्तार्बुदी तज्जठरी च जन्तुः ॥३४॥ (Su. Chi. 18/32-34)

### 3. Kaph Arbuda Chikitsa

शुद्धस्य जन्तोः कफजेऽर्बुदे तु रक्तेऽवसिक्ते तु ततोऽर्बुदं तत् ॥

द्रव्याणि यान्यूर्ध्वमधश्च दोषान् हरन्ति तैः कल्ककृतैः प्रदिह्यात् ॥३५॥

कपोतपारावतविड्विमिश्रैः सकांस्यनीलैः शुक्लाङ्गलाख्यैः ॥

मूत्रैस्तु काकादनिमूलमिश्रैः क्षारप्रदिग्धैरथवा प्रदिह्यात् ॥३६॥ (Su. Chi. 18/35-36)

निष्पावपिण्याककुलत्थकल्कैर्मांसप्रगाढैर्दीधिमस्तुयुक्तैः ॥

लेपं विदध्यात् कृमयो यथाऽत्र मूर्च्छन्ति मुञ्चन्त्यथ मक्षिकाश्च ॥३७॥

अल्पावशिष्टे कृमिभक्षिते च लिखेत्ततोऽग्निं विदधीत पश्चात् ॥

यदल्पमूलं त्रपुताम्रसीसपट्टैः समावेष्ट्य तदायसैर्वा ॥३८॥

क्षारानिशस्त्राण्यसकृद्विदध्यात् प्राणानहिंसन् भिषगप्रमत्तः ॥

आस्फोटजातीकरवीरपत्रैःकषायमिष्टं व्रणशोधनार्थम् ॥३९॥

शुद्धे च तैलं विदधीत भार्गोविडङ्गपाठात्रिफलाविपक्वम् ॥

यदृच्छया चोपगतानि पाकं पाकक्रमेणोपचरेद्विधिज्ञः ॥४०॥ (Su. Chi. 18/37-40)

In *Kaph Arbuda*, *Sema*, *Pinyaka* and *Kulthi Kalk* mixed with large amount of *Mamsa*, *Dahi*, and *Mastu* made *Lepa* on *arbuda*, due to which flies are sitting on *Arbuda* and giving birth to *Karmi*. *Karmi*'s eat *Arbuda* and some of the little pieces remaining of *Arbuda*, then *Lekhan*, and after that, *Agnikarma*.

In the *Alp Amula Arbuda*, *Trapu*, *Tamra* and *Sish* bandages are tied around the *Arbuda*; patient lifesaving, *Kshara*, *Agnikarma*, and *Shastrakarma* done multiple times.

#### 4. Meda Arbuda Chikitsa

मेदोर्बुदं स्विन्नमथो विदार्य विशोध्य सीव्येदतरक्तमाशु |  
 ततो हरिद्रागृहधूमरोघ्नपतङ्गचूर्णैः समनःशिलालैः ||४१||  
 व्रणं प्रतिग्राह्य मधुप्रगाढैःकरञ्जतैलं विदधीत शुद्धे |  
 सशोषदोषाणि हि योऽर्बूदानि करोति तस्याशु पुनर्भवन्ति ||४२||  
 तस्मादशोषाणि समुद्धरेत्तु हन्युः सशोषाणि यथा हि वह्निः |४३| (Su.Chi.18/41-43)

In *Meda Arbuda*, after *Swedan*, *Arbuda Shudhi* is done by incising the *Arbuda*. After proper haemostasis, suturing is done. Then *Haridra*, *Ghradhuma*, *Lodhra*, *Patang*, *Mansila*, and *Hartala Churn* to mix with the proper amount of *Madhu*; this *Lepa* is done on *Vrana*. After *Vrana Shudhi*, use *Karanja Taila*. Those *Arbuda Doshas* remaining, then *Arbuda* recurrence occurs quickly. So, excise the *Arbuda* with roots.

#### Rasayana Chikitsa –

Definition: यज्जराव्याधिविध्वंसि वयः स्तम्भकरं तथा । चक्षुष्य बृंहणं वृष्यं भेषजं तद्रसायनम् ॥भा. प्र.उ.७३ / १ ॥<sup>[21]</sup>

Benefits: दीर्घमायुः स्मृति मेधामारोग्यं तरुणं वयः । देहेन्द्रियबलं कान्तिं नरो विन्देवसायनात् ॥ भा.प्र.उ.७३/२॥

नाविशुद्धशरीरस्य युक्तो रासायनो विधिः । न भाति वाससि मिलष्ट रङ्गस्य इवार्पितः ॥ भा.प्र.उ.७३/३ ॥

Some examples of *Rasayana Chikitsa* are:

##### 1. Chaturvidha Rasayana

मण्डूकपर्ण्यां स्वरसः प्रयोज्यः क्षीरेण यष्टीमधुकस्य चूर्णम्  
 रसो गुडूच्यास्तु समूलपुष्प कल्कः प्रयोज्यः खलु शङ्खपुष्पाः ॥  
 आयुःप्रदान्यामयनाशनानि बलाग्निवर्णस्वरवर्द्धनानि  
 मेध्यानि चैतानि रसायनानि मेध्या विशेषेण च शङ्खपुष्पी ॥ भा. प्र. उ. ७३ / ५-६ ॥

##### 2. Shitodakadi Rasayana

शीतोदकं पयः क्षौद्रं घृतमेकैकशो हितम् ।  
 त्रिंशः समस्तमथवा प्राक्पीतं स्थापयेद्वयः ॥ भा.प्र.उ.७३/७४ ॥

##### 3. Vamshalochana Rasayana

माक्षिकेण तुंगाक्षीरी पिप्पल्या लवण ।

##### 4. Triphala Rasayana

त्रिफला सितया वाऽपि युक्ता सिद्धं रसायनम् ॥भा.प्र.उ.७३ /

*Rasayana* potentially helps each and every cell of the body stay healthy and reduces the risk of cancer progression. It also has a favourable effect on the tumour micro environment. Thus, *Rasayan* therapy works on all body cells as well as tissues and favourably modulates the immune system so that the risk of cancer progression is considerably reduced. *Rasayana* has no cytotoxic effect on cancer cells; rather, it strengthens normal cells and induces the programmed cell death of cancerous cells. It also modulates the tumour micro environment, leading to reduced tumour burden.

Dravya Name	Scientific Name & Family	Karma	Reference
1. Rudanti	<i>Capparis mooni</i> Wight, Capparidaceae	Rasayana	Sharangdhar
2. Haritaki	<i>Terminalia chebula</i> , Combretaceae	Rasayana	Sharangdhar
3. Guggulu	<i>Commiphera mukul</i> , Burseraceae	Rasayana	Bh. Pr., Sharangdhar
4. Amalaki	<i>Emblica officinalis</i> , Euphorbiaceae	Rasayana	Bh. Pr.
5. Shankpushpi	<i>Convolvulus pluricaulis</i> , Convolvulaceae	Rasayana	Kaiyadeva Nighantu [22], Ch.Chi. [23]
6. Rasona	<i>Allium sativum</i> , Liliaceae	Rasayana	Raj Nighantu [24]
7. Vatsnabh	<i>Aconitum ferox</i> , Ranunculaceae	Rasayana	Bh. Pr.
8. Katak	<i>Pandanus odorotissimus</i> , Pandanaaceae	Rasayana	Raj Nighantu
9. Salparni	<i>Desmodium gangeticum</i> , Leguminosae	Rasayana	Bh. Pr.
10. Nagbala	<i>Grewia hirsuta</i> , Tiliaceae	Rasayana	C.Chi.1/2/11, 1/4/6
11. Vriddhadaru	<i>Argyria speciosa</i> , Convolvulaceae	Rasayana	Bh. Pr.
12. Asashwagandha	<i>Withania somnifera</i> , Solanaceae	Rasayana	Bh. Pr.
13. Guduchi	<i>Tinospora cordifolia</i> , Menispermaceae	Rasayana	Bh. Pr., Sharangdhar
14. Shatavari	<i>Asparagus racemose</i> , Liliaceae	Rasayana	Bh. Pr., Su.Su.46, D. Nighantu [25]
15. Talamuli	<i>Curculigo orchioides</i> , Amaryllidaceae	Rasayana	Bh. Pr.,
16. Sharpunkha	<i>Tephrosia purpurea</i> , Leguminosae	Rasayana	Raj Nighantu
17. Shalmali	<i>Salmalia malabarica</i> , Bombaceae	Rasayana	Bh. Pr.
18. Kumari	<i>Aloe vera</i> , Liliaceae	Rasayana	Bh. Pr., Raj Nighantu
19. Chitrak	<i>Plumbago zeylanica</i> , Plumbaginaceae	Rasayana	A.H.U.39/62 [26]
20. Pippali	<i>Piper longum</i> , Piperaceae	Rasayana	Bh. Pr.,
21. Gambhari	<i>Gmelina arborea</i> , Verbenaceae	Rasayana	Bh. Pr., Su.Su.46
22. Sheetal Jal, Milk, Madhu, Ghritha	-	Rasayana	Su.Su.27/6
23. Brahmi Ghritham	-	Rasayana	Su.Su.28/6
24. Yava Made Bhkshaya Pdarth Eat with Pippali and Madhu	-	Rasayana	Su.Su.28/19
25. Brahma Rasayan	-	Rasayana	Ch. Chi1/1/57
26. Chyawanprash	-	Rasayana	Ch. Chi1/1/74
27. Amlaki Rasayan	-	Rasayana	Ch. Chi1/1/75
28. 4 Medhya Rasayan – Mandukaparni Swarasa, Yastimadhu Churna, Guduchi Swarasa, Shankpushpi Kalk	-	Rasayana	Ch. Chi1/3/31
29. Pippali Rasayan	-	Rasayana	C.Chi1/3/34

30. Pippali Vardhamana Rasayan	-	Rasayana	C.Chi1/3/40
31. 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> And 4 <sup>th</sup> Triphala Rasayan	-	Rasayana	C.Chi1/3/42,43,44,47
32. Shilajatu Rasayan	-	Rasayana	C.Chi1/3/61
33. Milk, Ghrita	-	Rasayana	C.Chi1/4/33

### (C). Surgical and Para-surgical

- i. Leech Therapy (*Jalaukavacharana*) or *Raktmokshana* - Acharya Sushruta mentioned *Raktmokshana* in *Vata, Pitta* and *Kaph Arbuda*.
- ii. *Agnikarma* - Acharya Sushruta Mentioned *Agnikarma* in *Kaph Arbuda*.
- iii. *Kshara Karma* - Acharya Sushruta used *Kshara* with *Gomutra* or only *Kshara* in *Kaph Arbuda*.
- iv. *Kshara Sutra Chikitsa* - Acharya Sushruta mentioned elevating the *Arbuda*, and then the root of the *Arbuda* was tied with the *Ksharasutra*.
- v. Surgical – *Chedhan* (excision), *Vishravan Karma* (drainage), *Lekhan* (scraping), *Bhedhan* (incision) – *Shastra Karma* in *Arbuda* mentioned by Acharya Sushruta.
- vi. *Vrana Chikitsa* – according to Acharya Sushruta, decoction (*kwath*) of, *Aparajita Chameli*, and *Kanere* leaves is used for *Vrana Shudhi*. After *Vrana Shudhi*, *Bharngi*, *Vidanga*, *Patha* and *Triphala*, *Kalk Siddha Taila* Is Used. *Pakva Vrana Chikitsa Viddhi* is used in *Arbuda*.

### (D). Palliative Care and Rehabilitation

- i. Yoga therapy – is one such fitness technique that will help cancer patients boost their overall fitness, mental health and energy levels. Using a yoga mat, be gentle on your body and practice the movements mindfully by keeping your focus on your breath. Hold each pose for 15-20 seconds and repeat each movement 2-3 times.
  - a. *Pranayama: Anulom Vilom* – alternate nostril breathing – it cannot cure cancer; it can help patients cope with the symptoms associated with cancer treatment as well as heal the mental-emotion stress they experienced in their cancer journey.
  - b. Meditation – reduce anxiety and stress.
- ii. **Pathya-Apathya** –

#### Pathya in Arbuda:

According to Acharya Charak,

*Shashtika* (a kind of rice harvested in sixty days), *Shali* (rice), *Mudga* – green gram – *Averrhoa carambola*, *Sandhav* (rock salt), *Amalaka*, *Yava*, rain water (*Antariks Jala*), milk, ghee, meat of animal dwelling in arid climate (*Jangla Mamsa*) and *Madhu*. (*Ch. Su.* - 5)

According to Yognatnakar,

*Puran ghritapan, jirna lohita shali, yava, mudga, patola, rakt shigru, kerela, vet agr bhag shak, ruksha & katu dravya, agnideepan dravya, sarva* (all) *guggulu, shilajatu*.

#### Apathya in Arbuda:

According to *Acharya Charak*,

*Vallura* (dried meat), dry vegetables (*shuska sakha*), lotus rhizomes (*shaluk*), lotus stalk (*bish*), one should never take meat from a diseased animal. *Kurchika* (boiled buttermilk), *Kilata* (a sweet milk product), pork, beef, buffalo meat, fish curd, *Masha* (black gram) and *Yavaka* (a variety of barley). (*Ch. Su.* - 5)

According to *Yogratnakar*,

*Milk, iksu, Anoop mamsa, pist anna, amla, Madhura, guru and abhishyandi dravya*

### iii. *Dinacharya and Ritucharya*

*Dinacharya* consists of the following steps, which are to be practiced daily to a certain extent:

According to *Ashtanga Hridaya*,

1. Waking up at the time of *Brahma Muhurta*  
ब्राह्मे मुहूर्त उत्तिष्ठेत् स्वस्थो रक्षार्थमायुषः।(अ. ह.सू. 2/1)
2. *Sauchvidhi* (passing of urine and faeces)  
शरीरवचन्त्यां निवर्त्य कृतशौचविवधस्ततः।
3. *Dantdhaavana* (brushing of teeth) – two times a day – morning and after dinner in night.  
अर्का न्यग्रोध खदिर करञ्ज ककुभादिकं ॥  
प्रातः भुक्त्व च मृद्वग्रं कषाय कटुतिक्तकं ।
4. *Anjana* (collyrium)  
सौविरमञ्जनं नित्यं हित्मक्षणोस्ततोभजेत्।  
योजयेत्सप्तरात्रेस्मात् स्रावणार्थे रसाञ्जनम्॥
5. *Navana* (nasal instillation)
6. *Gandusha* (gargling)
7. *Dhumapana* (inhalation of medicated smoke)
8. *Taambulasevana* (chewing of beetle leaf)
9. *Abhayanga* (oil massage)
10. *Vyayama* (physical exercise)
11. *Udvardana* (powder massage)
12. *Snaana* (bathing)
13. *Sadvritta* (good conduct)  
जेर्णे हितं मितं चद्यात् न वेगनैरयेत् बलात्।  
न वेगितो अन्यकर्यः स्यात् न अजित्व सध्यम्॥

This is a small rule of conduct in the end to avoid many diseases. It says-

One should eat only after the digestion of the previous food, and that too in a limited quantity. And one should not induce natural urges and at the same time, not voluntarily control them. Thus, these are, in brief, the steps to be followed on a daily basis to remain disease-free.

### *Ritucharya*

According to *Acharya Charka*,

<i>Ritu</i>	<i>Surya Bala</i>	<i>Chandra Bala</i>	<i>Prani Bala</i>	<i>Swabhava of Bhuman</i>	<i>Rasa Vriddhi</i>	<i>Pathya</i>	<i>Apathya</i>
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				<i>dala</i>			
1. Shishir	Poor na	Ksheen	Shreshtha bala	Ruksha	Tikta	Same as Hemant Ritu	Same as Hemant Ritu specially katu, tikta, kasaya rasa
2. Vasant	Poor ntar	Ksheentr	Madhyam bala	Rukshatar	Kashaya	shukhoshan jala, Yava, godhuma, seedhu, madhwik, laghu mamsa sevan – harin, shashak, laavak, kapinjal Vihara- vyayam, udwartan, dhum, kaval, anjan, Chandan, aguru lepa	Guru, snigdha, amla & Madhura ahara, divaswapn
3. Grishma	Poor ntam	Ksheentam	Alpa bala	Rukshtam	Katu	Madhura, sheeta, drava, snigdha ahara, jangal pashu pakshi mamsa, sharkara with sheetal manth, ghrit, dugdha, shali dhanya	Lavana, amla, katu & ushna dravya, madya, vyayam
4. Varsha	Ksheena	Purn	Alpa bala	Snigdha	Amla	Madhu should be used in food and drink, amla, lavana & snigdha dravya, puran yava, godhum, shali dhanya, jangal mamsa, sansakarit yush, taptsheet jal, koop jal	Udmanth, divaswapn, avashyay, nadi jala, vyayam, atap sevan, maithun
5. Sharada	Ksheentar	Purntr	Madhya bala	Snigdhat ar	Lavana	Madhura, tikta, laghu, sheet & pitta shamak dravya, Tikta Ghrita paan, virechan, raktmokshana, jangala mamsa, lava, kapinjala, ena, urabra, sharaba and shasha, shali, yava, godhum, hansodak paan	Vasa, tail, avshyay, audak, Anoop mamsa, kshara, dadhi, divaswapna, atap sevan, purvi vayu sevan
6. Hemant	Ksheentam	Purntam	Shreshtha bala	Snigdhtam	Madhura	Snigdha, Amla, Lavana Rasa Ahara, audak, Anoop, bilesah & prasah mamsa, ikshu rasa, madira, seedhu, madhu, gorasa, vasa, nava dhanya tail, ushna jala Vihara – abhyanga, jentaka sweda, oil application on head	Alpa, vatal, laghu ahara, udamantha, pravaat sevan

Each season has different effects on our body; hence *Ayurveda* suggests various regimens one can follow to avoid the harmful effects of the climate and reap the best out of it.

iv. LIFE STYLE

*Achara Rasayana,*

सत्यवादिनमक्रोधं निवृत्तं मद्यमैथुनात् । अहिंसकमनायासं प्रशान्तं प्रियवादिनम् ॥ ३० ॥  
जपशौचपरं धीरं दाननित्यं तपस्विनम् । देवगोब्राह्मणाचार्यगुरुवृद्धार्चने रतम् ॥ ३१ ॥  
आनृशंस्यपरं नित्यं नित्यं करुणवेदिनम् । समजागरणस्वप्नं नित्यं चीरघृताशिनम् ॥ ३२ ॥  
देशकालप्रमाणशं युक्तिज्ञम नहङ्कृतम् । शस्ताचारमसंकीर्णं मध्यात्मप्रवणेन्द्रियम् ॥ ३३ ॥  
उपासितारं वृद्धानामास्तिकानां जितात्मनाम् । धर्मशास्त्रपरं विद्यान्तरं नित्यरसायनम् ॥  
गुणैरैतैः समुदितैः प्रयुङ्क्ते यो रसायनम् । रसायनगुणान् सर्वान् यथोक्तान् स समश्नुते

(इत्याचाररसायनम्) । (C.Ch.1(iv)/30-31)

1. *satyavadinam* – truthfulness
2. *akrodham* – do not be angry
3. *madya nivрати* – do not indulge in alcoholic drinks
4. *maithuna nivрати* - observe celibacy and the sexual act according to the code
5. *ahimsa* – non-violence
6. *anayasa-* avoid over exertion
7. *prashantam* – be calm and peaceful in mind
8. *priyavadinam* – do not hurt others with your speech. Speak pleasantly
9. *Japa para* – always remember God
10. *Soucha Para* – Purity
11. *Dheera* – Patience
12. *Dhana* – Charity
13. *Tapaswin* – Austerity
14. *Anrashamsya* – do not be cruel to anyone
15. *Nitya karuna vedinah* – be merciful to all who are in need of help
16. *Sama Jagrana* – *Swapna* – Maintain balance in waking and sleeping. Do not stay up long into the night and do not sleep in the daytime
17. *Nitya Ksheer Ghritashinah* – Take milk and ghee in moderation in your diet
18. *Yuktigya* – Plan ahead to achieve your goals
19. *Anahamkari* – avoid super egotism
20. *Shastachara* – maintain good behaviour established by *Apta* – the great sages and saints of society
21. *Addhyatma Parayanam* – be conscious
22. *Upasitarah vridhdhanam* – respect and serve your elders

23. *Upasitarah Astikanam* – respect and serve priests, sages, and saints Who serve your religion and God
24. *Upasitarah Jitatmanam* – respect and serve the people who have Conquered their senses (masters of desires)
25. *Dharma Para* – keep yourself busy in religious activities
26. *Shastra para* – continually study new sciences, advances, research, and philosophies and utilize them for the benefit of all human beings.

## CONCLUSION

Ayurvedic science of medicine is based on the principle that prevention is better than cure. It provides a holistic healing approach that removes the problem from the root rather than just targeting the symptoms. Hence, Ayurveda focuses on the root cause of the health problem and then provides remedies accordingly. Whereas Allopathic system of medicine is based on certain chemical formulations that treat the patients symptomatically. Researches also shown some of allopathic formulations can cause malignancy. The modern lifestyle could be responsible for spreading malignancy so fast. In contrast ayurveda is not only deal with medicine but also deal with proper lifestyle in words of Ritucharya, Dincharya Ratricharya etc. Allopathic formulations and therapies can damage diseased as well as normal tissues of body. Ayurveda can protect normal tissue damage during radiation therapy and chemotherapy.

Rasayana Dravyas that support strength, immunity and longevity. As consumption of allopathic medicines increases, patient may eventually dcould be drug resistance against the said medicine, as a result patient's body may stop responding to the specific drug. Ayurvedic formulations can boost the efficiency of these medicines. In case of surgical context, basics of all surgery originate from ancient Sushruta Samhita. No doubt modern surgery is far advance then classical approach, still the principles of ancient surgery are in prevalence in modern era. Also, Acharya Sushruta as well as many ancient acharyas used many ayurvedic formulations in malignancy as we have discussed above. Modern system of medicine has been also given advancement in diagnostic tools for early diagnosis of malignancy. In short conclusion can be made under these lines:-

1. Prevention of malignancy and maintaining the physical as well as mental health by following the basic concepts of Ayurveda like Ritucharya, Dincharya and Ratricharya.
2. If diseased, Early detection and diagnosis of malignancy with the help of ayurvedic concept of malignancy and modern diagnostic tools.
3. Early surgical removal of malignant lesion (if possible), with help of ancient concepts of Acharya Sushruta and modern surgical advancement.
4. Application of Radiotherapy, Chemotherapy, Immunotherapy, or any other modern advancement treatment modality as and when required. Always use of ayurvedic formulation to combat the side effects of these modern treatment modalities.
5. In palliative care, different Ayurvedic formulations are available in Ancient Samhitas that can delay the early death of the patients as well as that can make less painful, the reaming life of patients.

6. In all approaches Rasayan therapy, Sadvrit therapy, Yoga protocol, Meditation could be gold standard for fast and sustainable recovery of malignant patients.

Therefore early diagnosis & early treatment along with integrated approach could be the best possible treatment modality till date.

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