



Prevention of *Sartan-e-Sadi* (Breast Cancer) in Unani System of Medicine - A Review

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ABSTRACT

Sartan is an Arabic word which means crab. Unani physicians mentioned that *sartan* occur due to excessive production and accumulation of *khilte sawda* (black bile). *Ibn Sina* states that *sartan* is a tumor arising from "burning" of *khilte sawda*. Breast Cancer is the most frequent cancer among women, impacting 2.1 million women each year, and also causes the greatest number of cancer related deaths among women. In 2018 it is estimated that 6,27,000 women died from breast cancer. Prevalence of breast carcinoma in India is 1 in 30 women. Nulliparity, obesity, late menarche, early menopause, prolonged use of oral contraceptive pills, smoking, alcohol consumption, intake of high calorie diet, and animal fat are the risk factor especially for developing breast cancer. Following breast cancer treatment with surgery and radio & chemotherapy, a significant number of women will develop treatment-related complications that affect function and quality of life. Safe and beneficial alternative therapies should be integrated into regular cancer care to improve patient quality of life. By understanding and addressing issues, compassionate care can be tailored to each patient, and oncology will reach the noble goal of treating each patient as a person with cancer, rather than treating only cancer in a patient. Unani system of Medicine emphasizes a holistic approach towards prevention of breast cancer with a well-balanced diet, adequate exercise, life style modification and use of herbal immunomodulators.

Keywords: Breast Cancer, *Sartan-e-Sadi*, Prevention, Unani system of medicine

INTRODUCTION

Cancer a dreadful disease in unani called as *Sartan*, an Arabic word meaning Crab. It is supposed to be due to over production and accumulation of Black Bile [1]. Though it is threatening but if diagnosed earlier it can be cured if treated well. If diagnosed late. It is dreadful and fatal [2]. It is a peculiar disease characterized by uncontrolled cell growth (abnormal mitosis) which has the capability to invade and spread in all proximal and distal part of the body.

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Opinion of Unani Scholars: Rhazes/Razi in his book "*Kitab Al-Mansoori*" mentions *Sartan* as *Marz-e-Muhlik* (fatal disease). Galen (Jalinoos) inscribed in his classical clinical observation that in the breast we have seen a tumor exactly resemble the animal crab and he elaborated the humoural theory of Hippocrates and classified tumours into three major groups.

- On koi (lumps or masses)
- Karkinomas (non-ulcerating)
- Karkinos (malignant ulcers) [3,4]

In Unani text *Sartan* may be presented in 3 forms

1. May be presented with severe pain
2. May be painless and static
3. May be presented with ulcer developing from heat generated of yellow bile (safra). This form develops from *hararate safrae khalis*.

Prevalence of breast cancer

It is most common disease in women of the world especially urban women. Most common type of breast cancer is-

Invasive & ductal carcinoma

In India Locally Advanced Breast Cancer (LABC) constitutes 40-60% of newly found malignant breast neoplasm. Most malignant type of Breast Cancer is Inflammatory Breast Carcinoma.

In 2018 it is estimated that 6,27,000 women died from breast cancer. It impacts nearly 2.1 million women each year [5]. Prevalence of Breast carcinoma in India is 1 in 30 women [6]. Cancer of breast more often in left breast than the right breast and B/L in 4% of cases. Anatomically upper outer quadrant is the site of tumor in half of the breast cancer.

Increasing incidence of breast cancer in young age group; i.e. 30-40 years where as previously it was noticed in more in age group of 50-60 years. Table 1 shows state wise distribution of Breast Cancer.

Table 1: State wise distribution of CA Breast

Highly effected	Moderately effected	Least effected
Goa	Punjab	Manipur
Rajasthan	Maharashtra	Tripura
Delhi	Bihar	

Pathogenesis & Etiology

Sartan mostly occurs in soft tissue organs. Ibn Sina states that *sartan* is a tumor arising from burning of *Khilt-e-Sawda*, means increase of innate heat and thus becomes pathological [7]. 90% of breast cancer arises from ductal epithelium while 10% from lobular epithelium. The causes and development of cancer are multi factorial i.e. excess production and abnormal changes occur in khilt.

There are five types of abnormal changes that occur in *Sauda* (Black Bile)

1. Excess production of normal *Sauda*
2. Burning of normal *Sauda* into abnormal *Sauda*
3. Formation of *Sauda* due to burning of blood
4. Formation of *Sauda* due to burning of phlegm

5. formation of *Sauda* due to burning of *Safra* (bile)

High risk factors

Consumption of large amount of animal fats, high caloric diet by western population than the Asian women are at high risk.

- 1^o Relative (mother, sister, daughter) of women with breast CA have 2 to 6 fold high risk of development of breast CA
- 10% of breast CA have been found to have inherited mutations (BRCA1 & BRCA2)
- Excess endogenous estrogen or exogenously administered estrogen for prolonged duration is an important factor in the development of Breast CA
- Late Menarchy, early and late menopause females are at high risk
- obese female unmarried and nulliparous women are prone to CA Breast
- Women with 1st child birth at a late age over 30 year
- Estrogen replacement therapy administered to post menopausal woman result in increased risk of breast cancer for more than five years
- According to NCI (National Cancer Institute) there is mixed evidence that hormonal contraceptives may increase the risk of Breast and cervical cancer
- The American Cancer Society (ACS) says that people who have taken birth controls pills are slightly more likely to develop breast cancer than those who have never used them.
- Cigarette, Hukka, Bidis, Vapes, E-cigarette consumptions leads to high risk factor for Breast cancer
- Alcohol consumption: 1 drink/day increase risk slightly whereas 2-5 drinks/day increase risk about 1.5 times
- Breast augmentation surgery
- Exposure to ionizing radiation during breast development
- CA of one breast increase chance of CA in other breast by 3-4 times
- Diet low with phytoestrogens is risk factor for CA Breast

WHO classification for Breast Cancer is mentioned in Table 2.

Table 2: WHO classification for Breast cancer

In situ carcinoma	Invasive Ductal	Paget's disease of nipple
	lobular	
ductal	Tubular	
lobar	Mucinous	
	Medullary	
	Papillary	
	Metaplastic	
	Inflammatory	

Clinical features based on stages of Breast Cancer

Stage I: Patients usually have invasive breast cancer, while-

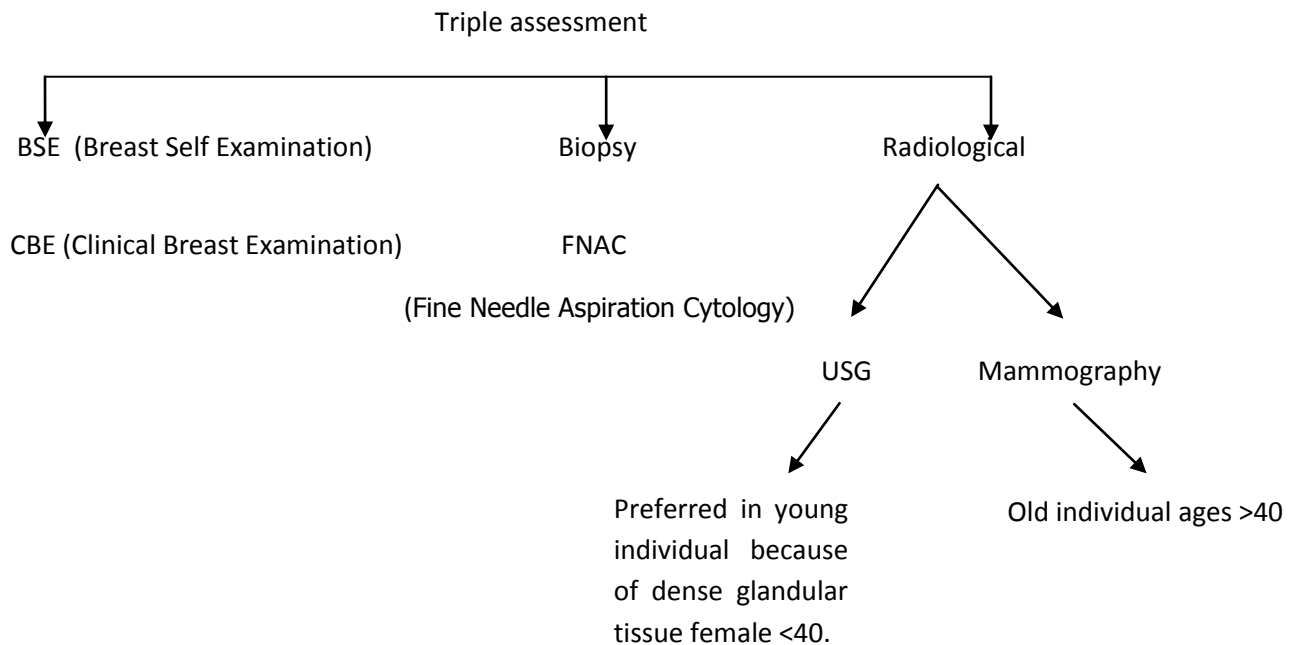
- a. Refers to a tumor smaller than two centimeters that has spread to the lymph nodes but not outside the breasts.
- b. Refers to isolated cancerous patches rather than a mass that measures 0.2 to 2mm.

State II: This is when the tumor has spread to the auxiliary lymph nodes which can be two to five centimeters and remain localized.

Stage III: This condition describes a more aggressive form of invasive breast cancer and is divided in to three sub phases.

Stage IV: Indicates that the CA has spread to the other organs of the body such as the lungs the liver distant lymph nodes skin and bones.

Investigation



Prognostic factors in CA Breast:

- Lymph Nodes status is most important prognostic indicators for tumour localized to breast.
- When metastasis has occurred prognosis no more depends on the lymph nodes.
- Best Prognostic factors:
 - CA Breast - Stage > Axillary LN Status
 - Metastatic CA Breast: Hormone receptor
 - ER - If breast CA cells have estrogen receptor are called ER positive.
 - PR - If breast CA cells have progesterone receptor are called PR positive.
- Prognostic Markers:
 - Markers like
 - Ki - 67 (Kiel '67)
 - BCL 2 (B-cell lymphoma 2)

- Bax Bc 1-2
- VEGF - Vascular endothelial growth factor
- HER 2 / neu - Human epidermal growth factor receptor 2

EGFR - Epidermal Growth Factor Receptor gene, expressions are associated with poor prognosis. 10% of breast cancer has been found to have inherited mutations (BRCA1 and BRCA 2). Modern Treatment of Breast Cancer is given below in Table 3.

Table 3: Modern Treatment

Surgery	Medical Procedure	Medication
Mammaplasty	Teletherapy	Estrogen modulator Tamoxifen Raloxifene
Tissue expansion	Radiation therapy	Chemotherapy Anthracycline Taxanes
Lymph Node dissection		Bone Health
Lumpectomy		Hormone based therapy
Mastectomy		

Following breast cancer treatment with surgery and radio & chemotherapy, a significant number of women will develop treatment-related complications that affect function and quality of life. Safe and beneficial alternative therapies should be integrated into regular cancer care to improve patient quality of life. Unani system of Medicine emphasizes a holistic approach towards prevention of breast cancer with a well-balanced diet, adequate exercise, life style modification and use of herbal immunomodulators.

Unani Management

Ibn Sina describe in his book *Al-Qanoon* there are four purposes to such treatments

- a. total arrest of cancer
- b. Preventing its progress
- c. preventing ulceration
- d. Treatment of ulceration [8,9]

The principle of treatment of *Sartan* in Unani medicine focuses on to prevent the collection of *Sauda*. On the basis of Unani system of medicine firstly it is regaining the humoral balances by giving

- purgatives
- laxatives
- blood letting

- emetics
- diuretic
- enemas

According to Galen's texts

"If you attempt to cure cancer by surgery begin by cleaning out the melancholic tumour by cathartics. Make accurate incisions surrounding the whole tumour so as not to leave a single root. Let the blood flow and do not check it at once, but make pressure on the surrounding veins so as to squeeze out the thick blood. Then treat as in other wounds [10].

More over cancer is a difficult to treat but further progression can be prevented by providing relief in its symptoms via

- a. Dietotherapy (Table 4 and 5)
- b. Pharmacotherapy (Table 6 and 7)
- c. Regimenal therapy
- d. life style modifications

Table 4: Dietotherapy (*Ilaj bil ghiza*)

Diet restricted	Diet allowed
<ul style="list-style-type: none"> • Hot and spicy food items [11,12] • Food items that produce sawda like • Masoor (red lentils) • Brinjal • Qambeet • (karamkallaa) [12] • Cow's meat • Black & concentrated alcohol [11] 	Highly nutritious and easily digestible diet like. <ul style="list-style-type: none"> • Chicken • Soft meat like meat of bird & lamb • Chapatti of wheat flour • Bathuwa (variety of spinach) • Palak (spinach) • Chuqandar (beetroot) • Angoor(grapes) • Anjeer (fig) • Badam (almond) • Aalu bukhara (Pulm) and other fruits • Sharab e rehani (alcohol of tulsi) • Soup of baqoolate barida (cold vegetables)

Table 5: Evidence based food item having anticancerous effect

S. No.	Food	Scientific name	Chemical construction	Pharmacological Action	Reference
1	Garlic	<i>Allium sativum</i>	Volatile of organe sulphur compounds like ajeone alliin, allicin etc enzymes like peroxidase, allinase myrosinase	Antidabetic, antimicrobial, anticancerous, anti-hypertensive, anti-thrombotic hypolipidemic	13,14
2	Turmeric	<i>Curcuma</i>	Curcuminoids:	Anti-inflammatory,	14,16

		<i>longa</i>	curcumin demethoxy curcumin, bisdiemethoxy curcumin, Phenolic acids	antioxidant, anticancerous, hepatoprotective, cardioprotective thrombosuppressive anti-arthritis	
3	Ginger	<i>Zingiber officinalis</i>	Volatile oil (zingiberol, zingiberine)	Induction of apoptosis, Antiproliferation, potent antioxidant, androgenic, anti ulcerogenic, anti-inflammatory, hypolipidemic	17
4	Grapes	<i>Vitis vinifera</i>	Phenols, tannins, lignans flavonoids, carotenoids, terpenoids	Anti-cancerous	18,19
5	Beetroot	<i>Beta vulgaris</i>	Carotenoids, spaonins, folate, polyphenols, flavonoids, trans fatty acids, beta cyanins	Anti-cancerous, antioxidant, antimicrobial	20,21
6	Plum	<i>Prumus salicina</i>	Polyphenolic compounds, carbohydrartes, fat, proteins, minerals, carotenoids, vitamin B	Cytotoxic, antioxidant	22,23
7	Cabbage	<i>Brassica oleracea</i>	Beta carotene, Indole 3 Carbnole, omega 3 fatty acids	Anti cancerous, potent antioxidant	24
8	Red cabbage	<i>Barssica oleracea</i>	Anthocyanins	Powerful anticancer and inflammatory	24
9	Aloe vera juice	<i>Aloe barbedensis</i>	Vitamins amino acids	Anticancerous	24
10	Saffron	<i>Crocus sativus</i>	Crocetin	Anticancerous	16
11	Green tea	<i>Camellia sinensis</i>	Epigallocatechin 3-gallate (EGCG a major catechin, polyphenols	Anticancerous	25,26
12	Wheat	<i>Triticum aestivum</i>	Proteins, fiber, essential vitamins, cellulosic, polysaccharides	Anticancerous, cardioprotetive, antidiabetic, gastroprotective, immune modulatory	26,27
13	Rye	<i>Secale cereale</i>	Dietary fiber, lignans, cellulosic, Polysachharides phytosterols	Anticancerous, cardioprotetive, antidiabetic, gastroprotective, immune modulatory	28

14	Pulses & legumes (alfalfa, clover, Peas, beans, lentils, lupines, soy, peanuts)		Fat, Protein dietary fiber, micronutrients, Phytochemicals, isoflavones	Antioxidant, anti cancerous	25
15	Fruits & vegetables		Vitamins, minerals, salicylates, flavonoids, glucosinolates, terpenes, lignans, isoflavones, B- cartotene Vit. C	Antioxidant, anti cancerous	25

Table 6: Pharmacotherapy (*Ilaj bil dawa*)

Drug administration	Unani formulations with ingredients	Indications
ORAL		
Oral	Joshanda Aftimoon (Cuscuta reflexa) [11,29]	As purgative of black bile
Oral	Decoction: <ul style="list-style-type: none"> • Unnab (Zizyphus sativa) • Sapistan (Cordia latifolia) 	To relieve pain due to cancer
	<ul style="list-style-type: none"> • Maghz fuloos khyar shambar (Cassia fistula) • Roghane badam shreein (Prunus amygdalus) [11] 	
oral	Galbanum (Ferula galbaniflua) mixed with honey [30]	

Pain associated with cancer can also be controlled with oral administration of ash of Tootiya (Copper Sulphate) mixed with milk.

Table 7: List of plant with anti cancer activities

Botanical name	Chemical constituent	Activity
Belgiri (Aegle marmelos)	Lupeol	Anti cancer [31]
Aelwaa (Aloe vera)	Acemanon	Anti cancer [32]
Khoolanjaan (Alpinia galangal)	Acetoxy-chavicol-acetate, galangin	Anti cancer
Neem (Azadirachta indica)	Liminoids, nimbolide (triterpenoids)	Antimutagenic [33] Antimetastatic
Zarishq (Berperis vulgaris)	Berberine, Cannabisin-G, tyramine, lyoniresinol (Phenolic compounds)	Anti cancer [34]

Soya (Glycine max)	Genistein and diazein (isoflavones)	Anti cancer [34]
Ginkgo biloba	Ginkgetin, ginkgolides (A & B)	Anti cancer [34]
Amla (Emblca officinalis)	Emblcanin A& B (tannins), Ellagic acid.	Anti cancer [35]
Rubia cordifolia	Rubidianin rubiadin RA-7, RA-700, RC-18	Anti cancer
Qust (Saussurea lapa)	Sesquiterpenes, costunolide, dehydrocostuslactone	Anti cancer
Viscum album	Viscumin (leetins), Viscotoxins (Polypeptides)	Anti cancer
Asgand (Withania somnifera)	Withaferin A. Sitoindoside IX, Physagulin-D withamoside IV, viscosalactone	Anti cancer [34]
Garcinia cambogia	Xanthones & garcenols	Anti cancer [36]
Hasha (Thymus serphyllum)	Thymol & carvacarol	Anti cancer
Dhaniya (Coriandrum sativum)	Quercetin, rutin & beta carotene	Anti cancer [34]
Mulaithii (Glyerrhiza glabra)	Glyeyrrhizin, aglycone and glycyrrhetic acid	Anti cancer
Tamatar (Lycopersicum esculentum)	Leaves extract	Anti cancer
Mako (Solanum nigrum)	Solamargine and solasonine	Anti cancer
Alsi (Linum usitassimum)	Secoisolariciresinol diglucoside (SDG)	Anti cancer
Lehsun (Alium sativa)	Organic sulfides, polysulfides	Anti cancer
Haldi (Curcuma longa)	Curcumin (di-feruloyl-methane)	Anti cancer
Banafsha (Viola odorata)	Cycloviolacin O2 (CyO2)	Anti cancer
Rehan (Ocimum sanctum)	Flavonoids (orientin, vicenin, cirsilmeol, cirsimaritin, isothymusin, isothymonin & apigenein)	Anti cancer
Methi (Trigonella foenum)	4- hydroxysoleucine (Amino acid), stetoidal sapogenins, galactomannans	Anti cancer
Sheetraj (Plumbago zeylanica)	Plumbagin	Anti cancer
Mac (Myristica fragrans)	Myristicin	Anti cancer
Adraq (Curcuma zeodoria)	Isocurcumenol	Anti cancer [37]

Regimenal Therapy (Ilaj Bil Tadbeer): It includes exercise, massage, Turkish bath, cauterisation purging, emeseis, diuresis, hijamah (cupping). Venesection (*fasd*) of basilic vein [11,30] or saphenous vein [30]. Venesection/phlebotomy is the generalized elimination of humors. It removes the excess of humors in the same proportion, as it is present in blood vessels. It is usually carried out when there is excess of blood in the body and patient is either exposed to the risk of developing a disease or has actually developed it. Pain associated with cancer can also be controlled with oral administration of ash of tootiya (Copper sulphate) mixed with milk.

Preventive Measures for Cancer

Unani scholars and physician have not only explained the concept of cancer (*Sartan*) but they firstly focused upon the idea of prevention of disease, instead of treating them, they have described a chapter on knowledge of protecting the health (IIM Hifz-e-Sehat) in which they stated as the science of Regulating the healthy body condition to preserve health. They have characterised this branch in three major areas as

- a. Promotion of preservation of health (*Hifze Sehat*)
- b. Prevention of disease through non pharmacotherapeutic approach (*Taqaddum bil hifz*).
- c. Protection of the susceptible (*Tadabeer Abadane Zaeefa*)

By creating a balance between humours and by adopting above mentioned knowledge of protection may lead to decrease incidences of Cancer in following manner.

- The body should be de-toxified from (*Saudawi maada*) Morbid Melancholic Humour
- Prevention from (*Garam wa khusk*) hot and dry temperament producing food
- Avoidance of alcohol
- Fresh and pollution free air for breathing
- Avoiding exposure to excessive heat or excessive cold
- Stoppage of tobacco chewing and smoking
- Avoiding smoked foods and preserved foods etc.
- Avoiding excess of non-vegetarian diet
- Avoiding black bile (*Sauda*) producing diets such as red meat, dried and salted meat and fish, etc.
- Taking soft and (*Zood Hazam*) easily digestible diets like bottle guard and pumpkin etc.
- Consuming fiber rich diet to avoid constipation
- Avoid sedentary lifestyle
- Do Moderate Exercise (*Mataadil Riyazat*) for 30-45 minutes per day
- Avoid (*Zehni dabao & Zehni Inteshaar*) mental stress and anxiety
- Avoid (*Nafsiyati Awamil*) extreme emotions, e.g. anger, fear, sadness
- Lead a spiritual peaceful life
- Sleeping for six to eight hours
- Ensuring proper (*Istifragh*) evacuation, urination, perspiration and menstruation
- Plenty or oral fluid to avoiding dehydration

Special Prevention in Breast Cancer

- Limit exposure to radiation
- Avoid delayed Marriage
- Plan Pregnancies early
- Breastfeeding at least for 6 months
- Mammography (annually after 40 yrs of age)
- USG (Ultrasonography of both breast in every 2 years after 20 years)
- BSE (Breast Self Examination in every 2 months)

- CBE (Clinical Breast Examination annually) [38]

CONCLUSION

Sartan is an Arabic word which means crab and is caused due to excessive production and accumulation of *Khilt-e-Sawda* (Black Bile). Breast Cancer is the second most cause of cancer related death in women. Prevalence of breast carcinoma in India is 1 in 30 women. Nulliparity; obesity, late menarche early menopause, prolonged used OCP, smoking, intake of high calorie diet, animal fat, alcohol consumption and 1^o degree related women are at high risk. Modern breast cancer treatment like surgeries, medications, radiations, cause a lot of health hazards that effect normal functions of life. A holistic approach towards prevention of breast cancer is given emphasis in Unani system of medicine which works on basic principle to prevent collection of *Sawda*. So well-balanced diet, routine investigation, adequate exercises, life style modifications and use of herbal immunomodulators are alternative therapies to improve patient quality of life. Hence by understanding and addressing issues compassionate care can be tailored to each patient and oncology will reach the noble goal of treating each patient as a person with cancer rather than treating only cancer in a patient.

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