

**A SHORT REVIEW ON USES OF HERBAL DRUGS IN CARDIOVASCULAR DISEASES**

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**ABSTRACT**

Herbal medication are commonly used for clinical purposes including treatment of cardiovascular conditions full stop compared with conventional medication herbal medication to not require clinical studies for their marketing for formal approval from regulatory agencies and for this reason their efficacy and safety are rarely proven. In this review we summarise available evidence on herbal medication mostly in cardiovascular medicine. We show that the use of this medication for the treatment of cardiovascular disease is often not supported by scientific evidence. Despite most of these herbs showing effect on biological mechanism related to the cardiovascular system data on their clinical effects are lacking. Potential relevant side effects including increased risk of drug interactions are described and the possibility of contamination of substitution with other medication represents a concern should always assess the use of herbal medication with patients and discuss the possible benefits and side effects with them. Herbal materials have been used as medical treatments since the starting of human civilization and some derivatives (Example as Aspirin, reserpine and digitalis) have become main stays of human pharmacotherapy. 4 cardiovascular diseases herbal treatment have been used in patients with congestive heart failure, systolic hypertension, angina pectoris, atherosclerosis, cerebral insufficiency, venous insufficiency and arrhythmia. However mini herbal remedies used today have not undergone careful scientific assessment and some have the potential to cause serious toxic effects and major drug to drug interactions.

**KEYWORDS:****INTRODUCTION**

Cardiovascular diseases (CVDs) are diseases of the various dangerous heart disease. Peoples death by Cardiovascular disease more than 17 million death. As a result, CVDs remain the worlds most common causes of death and are a major economic and health burden, worldwide. According to WHO was reported that CVDs account for 31% of year global death (2017). In European, CVDs account for 45% of all deaths according to European Cardiovascular diseases statistics 2017. The American heart association's current statistics estimate that around half of the population of the USA has a form of CVD. Globally, CVDs are the number one cause of death and they are projected to remain so. An estimate 2017 million people died from CVD in 2005, representing 30% of all global deaths. deaths by CVDs, 7.2 million by the disease of heart attacks and 5.7 million by stroke. About 80% deaths occurred in low and middle money country. If current trend allowed to continue, by 2030 an estimated 23.6 million people was death by CVDs. CVDs are a variety of disease including

- 1) Peripheral vascular diseases
- 2) Coronary heart diseases

**3) Heart failure****4) Heart attack (myocardial infarction)****5) Stroke****6) Cardiomyopathies****7) dyslipidaemias and****8) cerebrovascular diseases****9) rheumatic heart disease****10) congenital heart diseases****11) hypertension**

Majorly originate from a vascular dysfunction, which then lead to organ damage. For example the heart can suffer a heart attack, or the brain can suffer a stroke due to vascular impairment. Major culprits in vascular impairment include atherosclerosis, thrombosis, and high blood pressure, coronary heart disease kills more than 7 million people each year, and strokes kills nearly 6 million. Most of these death are in developing countries. Tobacco cause CVDs, physical inactivity, and unhealthy diet. Over 80% of CVDs deaths take place in in low and middle income countries and occur almost equally in men and women. CVDs has been responsible for more deaths annually than any other disease category

since 1900, except for influenza epidemic in 1916. Yet, the drug pipeline has been largely bereft of new entrants. In 2008, one new cardiovascular medication was marketed in the United States. In 2009, there were two new cardiovascular medications. There were seven new drugs for oncology in 2009. The present review explores new agents within the context of models currently in the drug pipeline. Of course, there is no guarantee that any of these agents will be marketed; a discussion of the models is illustrative of the type of approaches being used to develop new cardiovascular agents. The field of cardiac sciences has seen a lot of new development in the last few years. We have better drugs to treat life-threatening diseases; non-invasive cardiology has benefited from ever-improving technology. Invasive cardiology, lagged behind with most exciting developments occur in the percutaneous valve therapies which continue to evolve. Gene and stem cell therapy have also shown progress; these trends give us a glimpse into the future which appear very promising. Common risk factors for CVDs including, unhealthy diet, diabetes mellitus, hyperlipidemia, elevated levels of low density lipoprotein cholesterol, suppressed levels of high density lipoprotein cholesterol and hypertension. Other cardiovascular diseases including tumour of the heart, vascular tumour of the brain, disorder of the heart muscle, (cardiomyopathy) heart valve diseases, disorder of the lining of the heart. Drug therapy is a major treatment modality in cardiovascular diseases but there have been few new modifications approved for treatment; however, the number of new agents does not indicate that the field is bereft of new ideas. The present review explores the newer, more promising models for modification of treatment in each of the major cardiovascular conditions. This discussion is not meant to provide an exhaustive list of very new drugs under investigation because that would be impossible within the confines of a journal article. Treatment of Cardiovascular disease by herbal drug.

#### Herbal Drugs use in cardiovascular diseases

There are more than 2000 plants listed in herbal medicine and some of these are providing comprehensive relief to the people suffering from cardiovascular disease. Herbal products have been used as conventional medicine for thousands of years. WHO reports indicate that around 80% of the global population still relies on botanical drugs and several herbal medicines have advanced to clinical use in modern times. For Cardiovascular disease, herbal treatment has been used in patients with congestive heart failure, systolic hypertension, angina pectoris, atherosclerosis, cerebral insufficiency, venous insufficiency and arrhythmia. The beginning of human civilization, herbs have been an integral part of society, valued for both culinary and medicinal properties. There are many herbal remedies

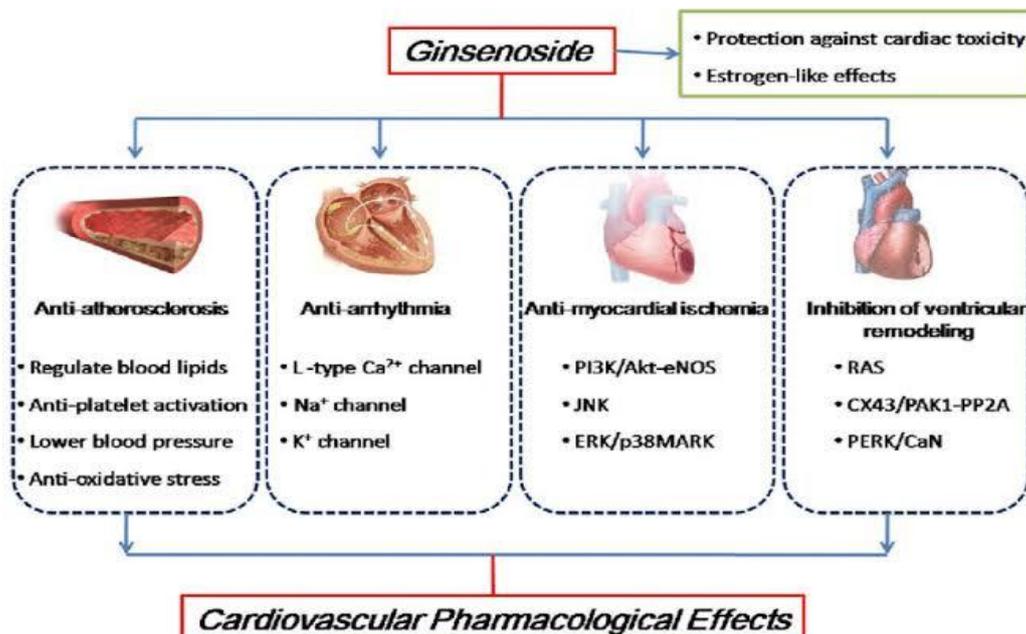
useful today on cardiovascular disease. Cardiovascular diseases remain the most prevalent cause of human morbidity and mortality all over the world. According to the survey by Global Burden of Disease Study, 29.6% of all deaths worldwide were caused by CVDs in 2010. It is estimated that the number of people that die from CVDs, mainly from heart disease and stroke, will increase to more than 24 million by 2030. The use of herbal medicine, one of the main therapeutic approaches of complementary and alternative medicine (CAM) can be traced back thousands of years ago. Currently, there is a recent resurgence of the use of herbal medicine in popularity among patients in the West and they were consumed by more than 15 million people in the US. Herbal medicines are favoured by people with CVDs all over the world for their unique advantages in preventing and curing disease, rehabilitation, and health care. There is growing evidence showing that many herbal medicines and their active ingredients contribute to the standard therapy for CVDs.

There are many drugs used for the treatment of CVDs by herbal drugs.

- 1) **Asian Ginseng**
- 2) **Foxglove**
- 3) **Grapes**
- 4) **Garlic**
- 5) **Ginkgo**
- 6) **Astragalus**
- 7) **Green tea**
- 8) **Hawthorn**
- 9) **Black cumin**
- 10) **Danshen**

#### Asian Ginseng

The scientific name of Asian Ginseng is **Panax ginseng** and used as an adaptogen for the body to boost the immune system. Asian Ginseng is claimed to improve blood pressure control and lower blood glucose and lipid levels. In clinical trials, investigators have found clinical outcomes associated with the use of Asian Ginseng in patients with cardiovascular disease. Preclinical data from *in vitro* and *in vivo* studies have shown that Asian Ginseng contains saponin with a partial agonistic effect on the steroidal receptor, known as ginsenosides, which may exert beneficial effects on the cardiovascular system by stimulating secretions of endothelial cell-derived nitric oxide (NO), modulating calcium ion channels in myocardial cells, inhibiting production of reactive oxygen species, reducing platelet adhesions, influencing autonomic neurotransmitter release, and stabilising glucose homeostasis. Asian Ginseng can induce the activity of the cytochrome P450 (CYP450) family and, as a consequence, lower bioavailability of a number of medications, including Warfarin.



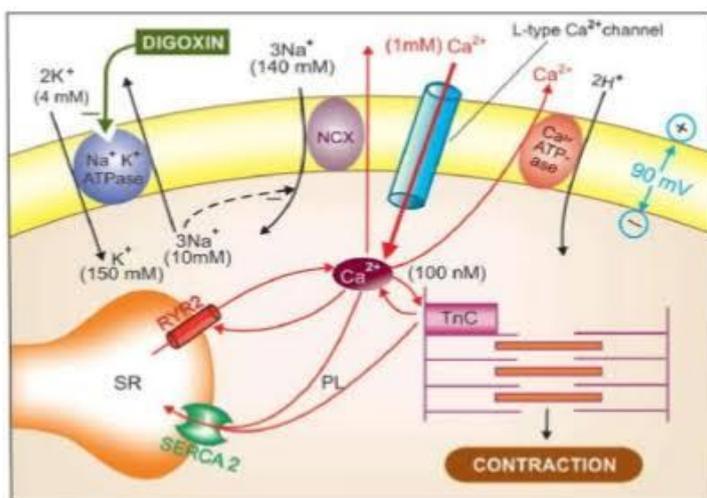
(Figure. Ginseng Action on cardiovascular system)

**Foxglove**

Digoxin is a chemical found in the foxglove plant. It is a drug that increase the force of her at contraction and also slow the conduction of electrical impulses through the heart. As such, digoxin is currently licensed to treat her at failure and certain heart rhythm problem. The digoxin may have potential use in the treatment of high blood pressure. However, much mote research is need to determine whether the drug is safe and effective for treatment of patients with hypertension. The exact

mechanism by which digoxin improve heart fuction is not known. This research suggests that is rule in increase in RGS2 level may account for some of its clinical impact in the treatment of heart failure. Overall, this study provides additional knowledge that may be helpful in developing new drug for heart conditions, and understanding how current cardiac therapist work. It has, however, little immediate relevance for patient with high blood pressure.

**Cardiac glycosides – Digoxin**

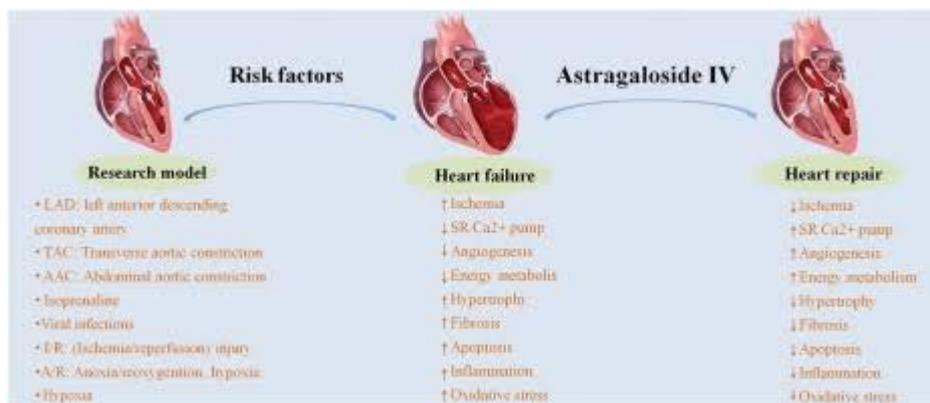


**Mechanism of positive inotropic action of cardiac glycosides.**

SR—Sarcoplasmic reticulum; TnC—Troponin C; NCX—Na+Ca2+ exchanger; RyR2—Ryanodine receptor calcium channel 2; PL—Phospholamban; SERCA2—Sarcoplasmic-endoplasmic reticulum calcium ATPase 2.

Figure.(Mechanism of action Digitoxin on Cardiac muscles)





(Figure. Mechanism of action of Astragalus in cardiac diseases)

**Green tea**

The scientific name of Green tea is *Camellia sinensis*. Green tea is used for treating a improvement of mental alertness and in cardiovascular effects include reduction of cholesterol level, improves diabetes control and prevention of cardiovascular events. Green tea is rich in flavonoids that are mainly present as catechins. It also

contains large amount of vitamin and minerals, such as folic acid, niacin, pantothenic acid, riboflavin, manganese, potassium, magnesium. In observations study have found that green tea may reduce cardiovascular morbidity and mortality when concern in high doses and for long term.

**CENTRAL ILLUSTRATION: An Evidence-Based Review of Herbal Medications Used in Cardiovascular (CV) Medicine**

Clear evidence of benefit	Limited evidence of benefit (to be confirmed in large studies)	No or conflicting evidence of benefit	
	Limited side effects	Limited side effects	Potentially severe side effects
	<p>Flaxseed oil, Milk-thistle, Grape seeds, Green tea, Hawthorn, Garlic, Soy</p>	<p>Astragalus, Asian ginseng</p>	<p>Ginkgo biloba</p>

⚠ High risk of interactions with CV medications

**Hawthorn**

The mainly used for many cardiovascular conditions, including hypertension hyperlipidimia, arrhythmia and Congestive heart failure. **Crataegus** is the scientific name of Hawthorn. Hawthorn is traditionally used for the treatment of digestive, heart and kidney disease. Hawthorn appeared to exert a positive isotropic effects by influencing the Sodium-Potassium (Na<sup>+</sup>/K<sup>+</sup>) - ATPase and enhancing calcium transport in cardiomyocytes. Biological data have shown antioxidant properties of Hawthorn at the cellular and mitochondrial level. This Herb's anti inflammatory effects would also be related to down regulations of the intracellular expression of inflammatory cytokines. A vasodilating effects of Hawthorn in both the coronary and the peripheral vessels has been describe, and could directly

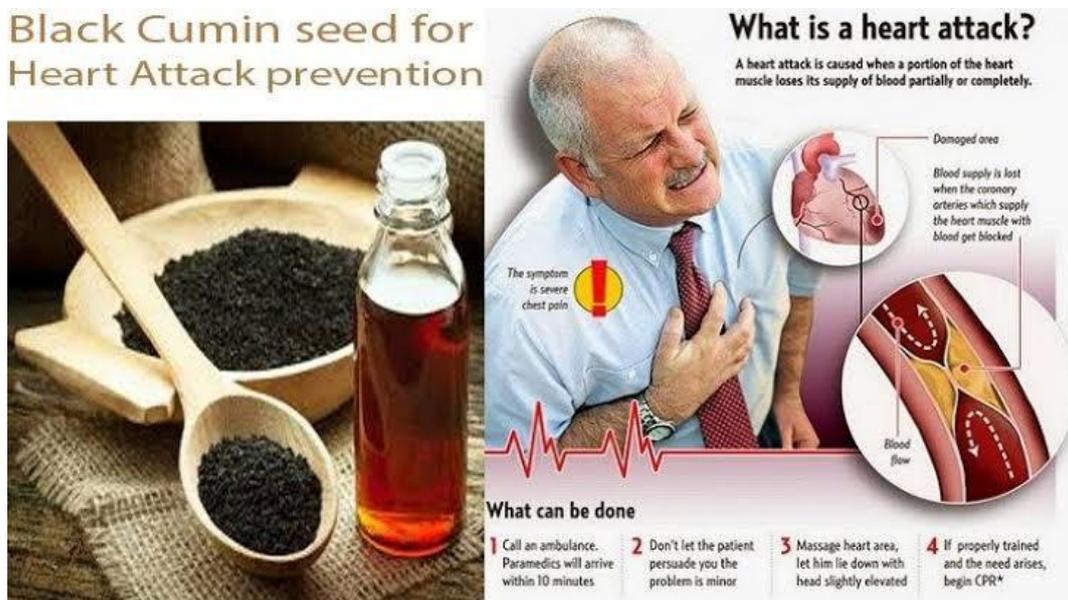
influence no level in the indothelium and inhibit angeotensin converting Enzyme. It may also exert antiarrhythmia effects through a mechanism similar to the action of class III antiarrhythmic drugs. It has been suggest that Hawthorn can inhibit cholesterol synthesis in the liver and lipid observation in the intestine.

**Black cummin**

The scientific name of black cummin is **Nigella sativa** and also known as Habbatul barakah. It has been used in kitchen of Europe, the middle East, Africa and Asia for centuries. N. Sativa contains linoleic acid, oleoc acid, palmitic acid and trasn-anrthole and other minor constituents, such as nigellicine, nigellidine, nigellimine. Thymoquin, one of the most abundant and bioactive compound, has been identify as the major element in its

healing effects. Similar to the other herbs, *N. sativa* and its constituents have been shown to reduce BP in human and different animal models of hypertension. *N. Sativa* seed extract administered orally to mild hypertensive male patient record a dose dependent fall in both systolic

BP and diastolic BP. Clinical trial found weak evidence that *N. sativa* has a short term benefits on lowering systolic and diastolic BP, with limit evidence that various extract of black seed can reduce triglycerides and LDL and total Cholesterol, while raising HDL cholesterol.



(Figure. Action of black cumin in heart diseases)

**Danshen**

The scientific name of danshen is *Salvia miltiorrhiza* and benefit for cardiovascular disease. It contains both hydrophilic phenolic acid and lipophilic tanshinones, which are believed to be responsible for its therapeutic efficacy. It's report that dihydrotanshinone present in the root of the plant can inhibit the uptake of calcium ions in vascular smooth muscle cells and hence exert vasorelaxant effects. Additionally, in vitro studies have conclude that varying dose of *S. miltiorrhiza* can interfere with platelets adhesions. Interestingly, *S. miltiorrhiza* appears to have benefit in ischemic myocardial The effects of these bioactive compounds from *S. miltiorrhiza* roots on Pharmacokinetics of comedicated drug with mechanic in site regarding alterations of protein binding, enzymes activity, and transporter activity based on both in vitro and in vivo human studies. In vitro studies indicate that cytochrome P450(CYP450) carboxylstrrase enzymes, catechol-o-methyltransferase, organic anion transporter 1 (OAT1) and OAT3, and P-glycoprotein were the major targets involves in *S. Miltiorrhiza* drug interaction.



(Figure. Danshen action in heart failure)

**RECENT ADVANCEMENT IN CARDIOVASCULAR TREATMENT**

The Cardiovascular market is expanded by the scarcity of new drugs. In which two pipeline agents are expected to reach blockbuster status with sales over \$1 billion by 2024. First is Mesoblast's Revascor a stem cell therapy for heart failure and Myocardia's SAR440181 (under III phase) is a myosin activator that administer orally. Its oral therapy is used for to treat dilated cardiomyopathy and systolic heart failure. The other major drugs of cardiovascular disease blockbuster included two anticoagulants namely Apixaban and Rivaroxaban, is a Anticoagulant drug, Brand and other name of apixaban is Eliquis which belongs to anticoagulant and Factor Xa

inhibitors class. It is approved by the USA-FDA IN 2012 for treatment of non-valvular atrial fibrillation, in 2014 it was approved for the venous thrombosis and pulmonary embolism. In atrial fibrillation in which heart beats is irregular and chances of clot forming is increase and cause stroke, rivaroxaban are taking to prevent this condition. Rivaroxaban is also used in patients with aspirin to decrease the risk of heart attack, stroke, and in serious coronary artery disease or peripheral artery disease (decrease blood flow to legs). Next is VARSARTAN a heart failure drug, it belongs to the angiotensin receptor blockers (ARBs). it works by relaxing blood vessels and decrease the high blood pressure. also prevent the heart attack and kidney problem. and two drugs for pulmonary arterial are Uptravi (selexipag) and Opsumit (macitentan). Selexipag is a oral medication it is a prostacyclin IP receptor agonist and Opsumit (macitentan) is a endothelin receptor antagonist approved for the treatment of

pulmonary arterial hypertension this condition is caused due to increase level of Endothelin-1.

### RECENT ADVANCES IN MECHANICAL TREATMENT

Numerous research finding in 2019 for the treatment purpose, hence improving health and reducing death due to cardiovascular diseases. This recent treatment advances can help you to keep out of the hospital and improve the quality of life, in which 8 types of FDA-approved devices that treat the heart are as follows.

#### 1. Automated external defibrillators (AEDs)

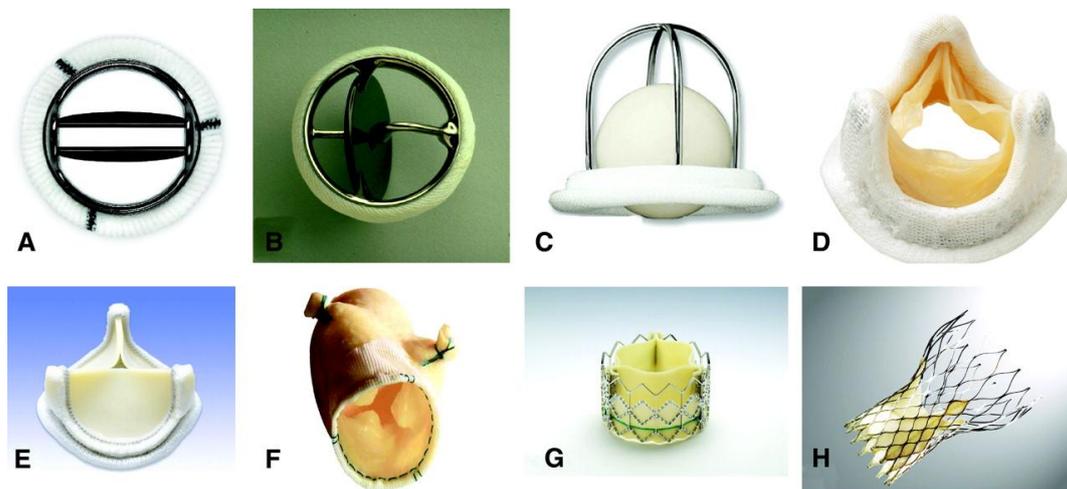
This devices are not difficult to use, these devices are portable and automated save the life of patients whose heart suddenly stopped pumping of blood. AEDs analyze the heart rhythm and can help to determine whether a shock is needed to restore normal heartbeat.



(Figure. Automated external defibrillator)

#### 2. Prosynthetic (artificial) heart valves

The human heart contains the four VALVES, tricuspid valve, mitral, pulmonic, and aortic valve. The main function of these valve is to keep the blood flowing in unidirectional. Prosthetic heart valve is a one way valve inserted inside the heart of the patients. Approximately 90 000 valve are now implanted in the USA and 280 000 worldwide each year. it should have thromboresistance, longlife good implantability. Three types of mechanical valve are used monoleaflet, bileaflet, and caged ball.

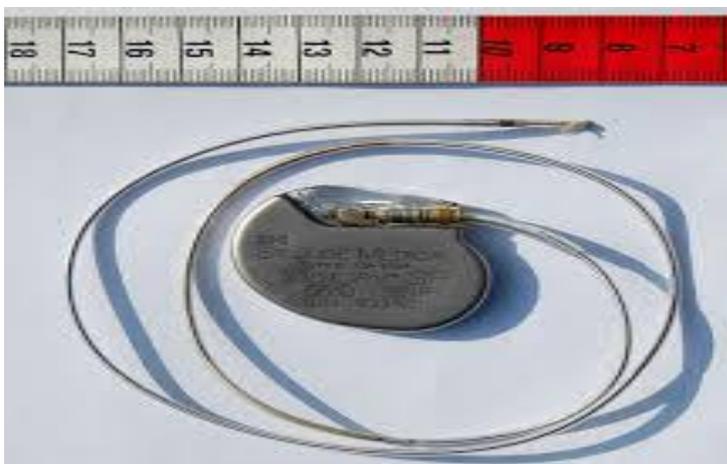


(Artificial heart valve)

**3. Cardiac pacemaker**

When the heart beat is too slow, small and battery powered Pacemaker are introduced into the body, this device monitor the electrical impulse when needed it

delivers an electrical impulse to help to control the heart beat. A pacemaker is implanted in the chest, below the collarbone during a surgery typically takes less than an hour.

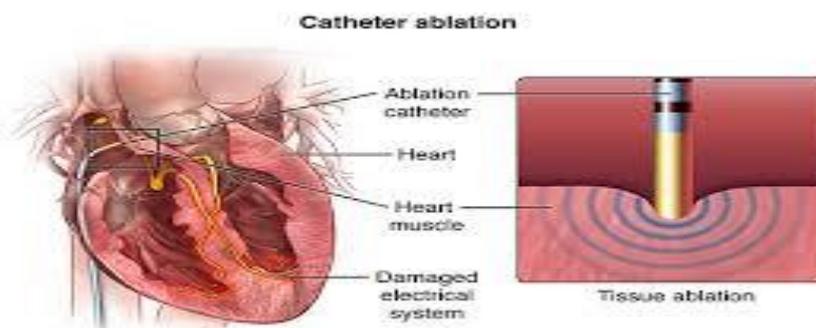


(Figure.Cardiac pacemaker)

**4. Cardiac ablation catheters**

Long, thin flexible tubes that are threaded into the heart, they stop the abnormal electrical signal that move through your heart and cause irregular heart beat (arrhythmia). Cardiac ablation can also treat the atrial fibrillation (AFib), medicines help to control the

abnormal heart tissue that causes arrhythmias butcatheter ablation destroys the tissue. This procedure takes place in a special hospital room called an electrophysiology (EP) lab or a cardiac catheterization (cath) lab. It takes 2-4 hours.

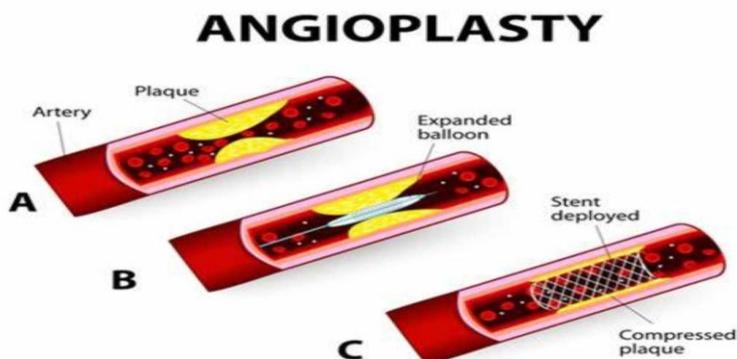


(Figure.Cardiac ablation catheters)

### 5. Cardio angioplasty devices

These devices are threaded into the heart or blood vessels to open the blocked or narrows areas. These are thin, long, flexible tubes. In ANGIOPLASTY a balloon tipped

catheters are used to open the vessels and improve the blood flow. During or after angioplasty a stent is often placed that helps to prevent the artery from closing in the long form.

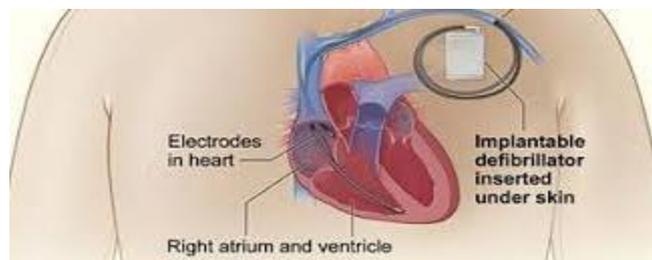


(Figure. Cardio angioplasty device)

### 6. Implantable cardioverter defibrillators (ICDs)

These devices monitor the heart rhythms and deliver shocks if dangerously fast rhythm are detected via one or more wires are connected to your heart to fix an abnormal heart rhythm. An ICD differs from the

pacemaker and another implantable devices used to help to control abnormal heart rhythm. Newer generation ICDs may have a dual function which includes as pacemaker. ICDs have been very useful in preventing sudden death in patients.

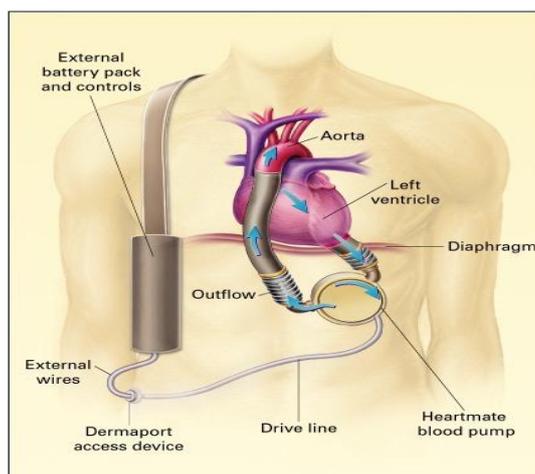


(Figure. Importable cardioverter defibrillator)

### 7. Ventricular assist devices (VADs)

A ventricular assist device (VAD) is a mechanical pump that is used to support a weakened heart. VADs are approved for short term use until donor heart is available. Now some are approved for long term used in patients with severe condition or if there is no candidate

for heart transplants. The device take the blood from the lower chamber of heart and pump it to the vital organ and the body like as healthy heart. VAD surgery usually takes 4-6 hours, the process is similar to open heart surgery.

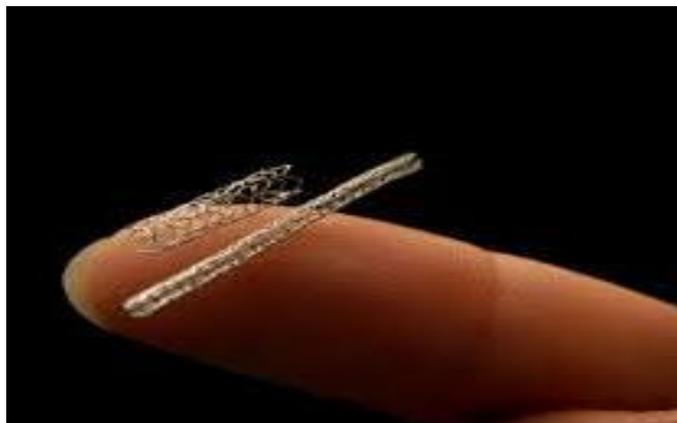


(Figure. Ventricular assist device)

### 8. Stents

Stents are small, expandable, lattice-shaped, metal tubes that inserted in the narrowed arteries. If a fatty material called plaque build up inside the arteries it can blocked the blood vessels from your heart to other parts of our

body, The stent restores the blood flow or other fluid, some stents contain drugs to decrease the chances of blocked again. These types of stents are called as heart stent or cardiac stent.



(Figure. Stents)

#### Overview of conventional drugs

By conventional drugs we mean either (a) pharmacological single entities which have been derived by chemical synthesis – the so-called newtonature drugs; or (b) single chemical derivatives of naturally occurring pharmacologically active substances detected in, and isolated from, members of the plant, fungus, bacterial, or animal world. 1,2 The first category includes laboratory originated drugs such as the ACE inhibitors, beta blockers, proton pump inhibitors, and nonsteroidal anti-inflammatories. The second category includes morphine, theophylline, colchicine, and other drugs derived from plant alkaloids; immune suppressants such as cyclosporine from soil fungus, most antibiotics, and human hormones and cytokines, such as insulin and interferon. They may be used singly, or, more often, they may be administered combined with other conventional drugs. This is done either to enhance the desired clinical effect, or to ameliorate the negative side effects of the principal drug

#### HOW HERBAL DRUG IS BETTRE THAN CONVENTIONAL DRUG

##### Overview of Herbal medicines

Herbal medicines are finished, labelled medicines containing pharmacologically active parts of a plant or plants, either in crude form or physically modified during processing. They are usually administered orally or topically to deal with chronic or acute clinical disorders and are available as fresh or dried plants, or as tablets, capsules, powders, teas, or extracts. 1

To understand the herbal drug is much better than conventional drug we have to study about mode of action, pharmacokinetic, pharmacodynamics of drug. Modes of action of herbs vs drug Identifying the pharmaceutical mechanisms of herbal products activity poses numerous challenges not faced by those studying

conventional drugs. For example, herbal products contain many active substances which can act in combination or synergistically, whereas conventional drugs are generally studied in isolation as single agents. Another difference is that a single conventional drug may only have one major direct action on a particular receptor site. Indeed, the more specific for one type of receptor is the preferred outcome of research for new pharmaceutical agents. Conversely, herbal products probably have several different pharmacological actions, and the one that predominates depends on the dosage employed, the part of plant selected, and the presence of other actives. Moreover, the herbal product may contain a particular active agent, but it may not be present in sufficient quantity to elicit a pharmacological action. Yet another difference is that pharmacological synergy may operate with a multi-component herbal product – that is, the net pharmacological response will be different when compared to one active agent alone, as the dominant mechanism may be potentiated by a separate mechanism. If a disorder is complex in origin, as with many chronic or recurring ailments, a simple approach such as drug treatment is unlikely to be more than marginally effective. Such disorders do not usually arise from a single biochemical, systemic, or organic defect, because the body's inner healing power is quite capable of dealing with this. Clinical disorders are the result of a complex disturbance of homeostasis, involving numerous cellular and organic networks. Most disorders are the body's natural response to several factors, some small, but others sometimes large, which work together to overcome the body's inner healing capacity. There may be trigger factors; environmental causes, genetic susceptibility and interplay, dietary factors, emotional considerations, lifestyle issues, all conspiring together. In order to modify and negate the disease process, effective therapy depends on addressing more than one form of disharmony. Herbal remedies usually offer a multi-target

approach, in contrast to conventional drugs, which generally affect the workings of one receptor site, or the action of one enzyme. What herbs do is mimic the body's natural intrinsic healing processes. This dilemma has long been recognized by conventional healthcare practitioners, and an attempt to resolve it by resorting to drug combinations, or poly-pharmacy. Cocktails of potent drugs are now almost standard in treating cancer, tuberculosis, HIV & Aids, heart disease, and others. Mechanisms of drug-herb interaction The mechanisms by which a herbal product interferes with a drug, or vice versa, are not fully understood in many cases. There are, however, a number of possible activities which explain the interaction; these are divided into pharmacokinetic and pharmacodynamics interactions.

### Pharmacokinetic interaction

**Inhibition of absorption.** The herb or drug acts on the other active agent to reduce or minimize its absorption. A number of agents have been identified: Pectin's, resins, tannins may bind to certain antibiotics, preventing unimpeded absorption of the drug. Garlic (*Allium sativum*) interacts with several drugs. It also reduces plasma concentrations of Chlorzoxazone. Ginkgo decreases the plasma concentrations of many drugs. [In practice this interaction can best be avoided by separate timing of drug and herb administration] **Enhancement of absorption.** This is usually the result of increased gastric emptying or shorter gut transit time. Laxatives can increase these processes. Certain saponins can increase gastric emptying, so enhancing the rate of gastric emptying. [In practice this interaction can best be avoided by reducing laxative usage, or selecting alternate times, or by dividing doses between morning and evening] **Drug metabolism increased.** The herbal product promotes an increase in metabolic enzymes in the liver, so boosting the breakdown or elimination of drugs. St John's wort reduces the plasma concentrations and increases clearance of a wide range of drugs. Echinacea affects the metabolic clearance of caffeine and certain anti-anxiety drugs. Ginkgo decreases the plasma concentrations of many drugs. Grapefruit juice decreases metabolism of cyclosporine and other drugs, due in induction of liver metabolic CYT P450 enzyme. [In practice this interaction can best be avoided by monitoring plasma drug levels, and adjusting dosage appropriately] **Binding of drug by a herb component.** Some antibiotics are chemically bound to certain botanical substances. This prevents or inhibits absorption through the intestinal wall, as the drug herb complex is either too big to absorb, or too poorly soluble in the intestinal fluid. [In practice this interaction can best be avoided by separating the timing of dosing of the drug and the herbal product] **Pharmacodynamics interaction** **Electrolyte depletion.** Laxatives and diuretic drugs can reduce sodium and potassium levels in the body, and so lead to adverse cardiac effects. [In practice this interaction can best be avoided by separating the timing of dosing of the drug and the herbal product]. The pharmacological effect is intensified. Certain herbs have

specific pharmacological effects. If a drug is being coadministered, an additive or perhaps synergistic effect can arise. Several herbal products and certain drugs may have the same effect on blood clotting mechanisms. Hypoglycemic drugs and herbal products used to treat diabetes may act together. Herbs which contain the alkaloids caffeine and ephedrine, or similar, may increase nerve stimulant drug action. St John's wort may enhance the nervous system effects of certain antidepressant drugs. [If both drug and herb are being used for the same therapeutic objective, a decision has to be made preferring one active agent based on cost, ADRs, long term effects].

### CONCLUSION

Use of sophisticated flavorer r the treatment of vessels diseases is not supported by scientific proof. though most of the herbs demonstrate a sway on biological mechanisms related to car-diovascular disease, available clinical studies are limited in sample size and do not show any impact on relevant clinical outcomes. Therefore, to date, available data do not provide enough evidence to recommend the use of herbal medications in clinical practice. In addition, potential relevant side effects, including increased risk of drug interactions, have been described, and the possibility of contamination or substitution with other medications is a concern. Physicians should improve their knowledge of herbal medications to adequately weigh the clinical implications related to their use, and be able to discuss with patients their possible benefits and side effects, and explain that natural does not always mean safe. The cardiovascular diseases considered in this chapter have been the major causes of morbidity and mortality in developed countries and developing countries are separately catching up with this Epidemic. The underlying pathology is atheromatous vascular disease resulting in coronary artery disease, cerebrovascular disease and peripheral vascular disease.

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