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Cardiovascular Diseases and its Prevention in Unani System of Medicine

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ABSTRACT

Cardiovascular diseases (CVDs) are the world's largest killer claiming 17.3 million lives a year. Over 80% of the world's deaths from CVDs occur in low and middle income countries. India contributes to this as 306.3 deaths per one lac of population.¹ It not only affects the individual but also affects the economic output of a country due to the inabilities and disabilities caused by it. Risk factor modifications are the best approach till date to combat with this world's leading death causing problem. As Hippocrates stated "Take care of your health before you lose it".² Thus, following the tadabeer(regimens) mentioned by Unani physicians, one can be saved from being affected by the gross complications of CVDs. This article tried to highlight all the possible preventive & therapeutic approaches of Unani medicine that could be valuable for the management & control of CVDs as well as could be a source of further researches.

Keywords: *Akhlate ghaleeza, Akhlate luzuja, Hazme saani, Sue mijaz, Oxidative stress.*

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INTRODUCTION

Cardiovascular diseases are a group of disorders of heart and blood vessels, including coronary heart diseases, congenital heart diseases, cerebrovascular diseases, rheumatic heart diseases, deep vein thrombosis and pulmonary embolism³. More or less atherosclerosis becomes the reason for majority of CVD's. Atherosclerosis is a disease in which plaque builds up inside the arteries. Plaque is a sticky substance made up of fat, cholesterol, calcium, and other substances found in the blood. Over time, plaque hardens and narrows arteries that limit the flow of oxygen-rich blood to the body. However, too much pressure in arteries can make the walls thick and stiff, sometimes restricting blood flow to organs and tissues. This process is called arteriosclerosis, or hardening of the arteries⁴. These plaques can also burst, triggering a blood clot. Atherosclerosis is often considered a heart problem, but it can affect arteries anywhere in the body. It is a preventable and treatable condition that develops gradually. Sometimes a blood clot completely blocks blood flow or even breaks apart and can trigger a heart attack or stroke⁵. At a mechanistic level, it is the oxidative stress that promotes atherosclerosis. Oxidative stress arises as a result of an imbalance between free radical production and antioxidants defenses, associated with damage to a wide range of molecules like lipids, protein and nucleic acid⁶. Normally mitochondria in human body during oxidative phosphorylation produces reactive oxygen species (ROS) like superoxide anions, alkoxyl and peroxy radical, hydroxyl radical, nitric oxide and nitrogen dioxide. The ROS thus produced helps the immune system to remove the dead tissues and foreign bodies. But when this normal concentration of ROS changed to abnormal concentration (increased production), it leads to a number of problems like cancer and atherosclerosis etc. The production of ROS is believed to induce endothelial dysfunction- an initial step to atherosclerosis. Oxidative stress leads to the oxidation of LDL (low density lipoprotein) whose uptake becomes easier for macrophages. The macrophages get accumulated in the smooth muscles of blood vessels and release inflammatory factors like nuclear factor (NF- κ B) and activator protein 1 (AP-1) and other cytokines. Thus, it seems that atherosclerosis is an inflammatory process strongly affected by oxidative stress. Furthermore, increased production of ROS reduces the production and consequently the bioavailability of NO (nitric oxide- released naturally from endothelium), leading to vasoconstriction, platelet aggregation and adhesion of neutrophils to the endothelium. All these phenomenon leads to the formation of what we called is atherosclerotic plaque⁷. Unani physicians also mentioned this vascular alteration under the heading of Amraze mufrada-sue tarkeeb-khilqat-majari. They defined atherosclerosis as a marz of majari (disease of vessels) in which

sharain(arteries) becomes narrow and obstructed. The obstruction is caused either by akhlate ghaleeza/viscid humours or akhlate luzuja/sticky humours. It implies that there are some changes in the dynamic profile leading to akhlat to get accumulated in the blood vessels (oxidative stress) and thus causing narrowness and obstructions. The mechanism so described in Unani literature not only involve heart (sue mijaz sada or maddi) but also the factors which produces raddi khoon (unhealthy diet, obesity, physical inactivity etc.). Ultimately abnormal khilt is produced by liver (hazme doem) which proceeds to next digestive process- hazme saani (inside urooq/vessels). The abnormal sauda(black bile) and phlegm thus produce diseases in their place of digestion i.e. blood vessels, hence leads to the formation of atheroma, that affects other organs also like brain, liver, lungs etc.^{8,9} It has been proved by numerous of epidemiological and experimental studies that the use of antioxidants interfere in the LDL oxidation and reduce the level of atherosclerotic lesions at the clinical level. Vitamins C and E (antioxidants) stimulates the increase of BH4 (tetrahydrobiopterin which acts as cofactor and is used as a substrate for L-arginine leads to NO formation) levels and the activity of NO synthase and its bioavailability and improves endothelial dysfunction. Co administration of vitamin C and E seems to improve endothelial function in hyperlipidemic patients. But the risk factors so involved for the development of CVDs plays equally important role. It includes tobacco use, smoking, unhealthy diet, obesity, physical inactivity, raised blood pressure, diabetes and raised lipids.¹⁰ Unani physicians mentioned various principles for life style modifications thousands of years ago, which if adopted properly can combat with the prevailing problem of CVDs. The tadabeer mentioned in Unani literature focused on the change in the temperament of heart and then whole body to bring it to normal or close to normal. This can be achieved through-

Ghiza

Tadbeer

Dawa

Ghiza/ Dietotherapy

Recommended diet in Unani medicine for the people under risk of CVD, consist of a diet which is lateef and kaseerut taghzia i.e;

- Having the property of jila that will produce lateef khoon e.g. honey, fig, pistachio etc. This type of diet helps in thinning of blood.
- Which are hareef and muqatta balgham e.g. mustard seeds, soya, cumin, garlic, etc. This type of food stuff usually makes thick viscous phlegm thin and then helps to excrete them out of the body by changing it into marrah safra.

- Which are maleh e.g. small fish, maul jaban, maul laham etc. These food items reduce blood viscosity and increase blood circulation thus, preventing heart and other organs from ischemia.
- Which are haamiz e.g. vinegar, all citric fruits (Vit C) etc. These dietary stuffs break the viscid and thick humours into pieces so that obstruction will be released.
- The above mentioned diet not only helps in preventing CVDs but also act as an adjuvant in the treatment of CVDs, as they not only prevents thrombus formation but also breaks it, helps in releasing obstruction and preventing the ultimate outcomes-MI ad Stroke.
- Avoid constipating and flatulence producing food stuffs like Brinjal, potatoes, beef, cabbage etc, as they produces ghaleez khilt and bukharat that affects heart.¹¹

Tadbeer (Regimental therapies)

- a. **Dalak (massage):** Reducing stress by massage with the oil of kunjud and banafsha has a relaxing effect and it has been shown to reduce stress-related hormone levels. Lowering stress hormone levels positively influences cholesterol and blood pressure and may therefore; reduce the risk of heart disease.
- b. **Riyazat (Exercise):** Daily mild exercises like in the form of morning or evening walk may tahleel the raddi fuzlat (waste) from the body and release them out of the body through perspiration.
- c. **Hamman:** It dilates the pores of the skin, tahleel or gives nuzuj to the fuzlat of body and excretes them out of the body via sweating.¹²
- d. **Dawa (Drugs) :** Drugs having the action of mufarah wa muqqawi qalb,muffatah sudud, mussafi dam has been extensively used by our Unani physicians for the prevention and management of varying range of CVDs. The concept aims at maintaining the vitality of Qalb(heart) and other Aazae raisa(vital organs) by protecting them from untoward stimuli and strengthening them in order to cope with the factors affecting the Qalb and other Aazae raisa. From the above discussion it is supposed to use drugs for the prevention of CVDs which posses the property of antioxidants, anti-inflammatory, but should equally act as cardiogenic. There's a long list of such types of drugs in Unani medicine. Some of them are- Bandarajoboya, Aabresham, Garlic, Arjun, Ushna, Rehan, Daroonje aqrabi, Darchini, Haleela kabuli etc.¹³ Since then lots of research has been done and still going on to prove the efficacy of Unani drugs in the prevention and management of CVDs. Some of the scientific reports in this regard are as follows-

- **Bandarajoboya (*Mellisa officinalis*):** Studies showed its antioxidant properties. It effectively reduce LDL oxidation in human subjects.¹⁴
- **Aabresham(*Bombyx mori*):** Antioxidant, oral administration of *Bombyx mori* extract significantly decreased atherogenic index and lipid profile parameters(total cholesterol, LDL, triglycerides were reduced and significantly increased the HDL level) against high fat diet induced hyperlipidemia and obesity in rats.¹⁵
- **Lehsun(*Allium sativum*):** Butanol extract of dried bulb of garlic lowered the cholesterol levels, prevent blood clots, destroy plaque, antihypertensive, antioxidant in human adults.¹⁶
- **Ushna(*Parmelia perlata*):** Exhibited antihyperlipidemic effect in rats.¹⁷
- **Rehan(*Oscimum sanctum*):** Oral intake of rehan's leaves significantly reduced glutathione (GSH), superoxide dismutase and LDH in rats and exhibited the properties of anti inflammatory and antioxidant.¹⁸
- **Zafran (*Crocus sativus*):** Extract of zafran significantly decreased the serum LDH and CK-MB and myocardial lipid peroxidation as compared to ISO(isoproterenol)- induced rats. Demonstrated the properties of anti inflammatory and antioxidant as well.¹⁹
- **Daroonje aqrabi (*Doronicum hookeri*):** Shown to have antioxidant and anti-inflammatory properties.²⁰
- **Haleela kabuli (*T. chebula*):** Extract pretreatment was found to ameliorate the effect of isoproterenol on lipid peroxide formation and retained the activities of the diagnostic marker enzymes.²¹

And the list goes on.

CONCLUSION

Cardiovascular diseases are multifactorial. The rapidly rising burden of it devising epidemiologists & health agencies such as WHO to initiate urgent action to forestall this grave portent of increasing mortality and morbidity due to CVD. Unani system of medicine can also prevent & manage cardiovascular and other such non-communicable diseases through its diet, drug and other regimens. Unani drugs themselves have maximum effects and minimum side effects. Moreover the basic principle of maintaining the humoural balance in human body is unique in itself. The only thing is to incorporate these principles & regimens in health care systems to save the human species to get dissembled by different diseases.

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