World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-44, March 2025
ISSN: 2749-3644

PREVENTION OF CARDIOVASCULAR DISEASE AND CONSIDERABLE RISK FACTORS

QOVULOVA NURIZAR
4- th grade student , MEDICAL FACULTY OF
JIZZAKH STATE PEDAGOGICAL UNIVERSITY

Article history:

Received: February 8th 2025
Accepted: March 7th 2025

Abstract:

The article is illustrated information regarding to the study of different types of preventical methods , as well as , high risk factors . The paper considers the main factors how to influence cardiovascular system . Special attention is paid to global research methods , which make it possible to study in detail the amount of impacts and the process of effect mechanisms .

Keywords: risk factors, smoking , cholesterol, alcohol, cardiovascular disease , heart failure, ACE inhibitors, b-blicking drugs , gender, depression, fitness, psychosicial factors , obesity, hypertension, diabetes , myocardial infarction.

INTRADUCTION: Certain persional characteristcs and lifestyle point to increased likelihood of coronary heart disease and are called risk factors .

The three principal modifiable risk factors are smoking , hypercholestrolaemia and hypertension . Other modifiable factors linked to lifestyle include a saturated fat rich diet , obesity and physical inactivity .

Prevention strategies aim to reduce the risk of developing or retard the progression of atheroma , to stabilize plaques and to reduce erosion or rupture . The measerus can collectively reduce the risk of future cardiovascular events (mortality , myocardial infraction and strokes) by as much as 75-80 %

PRIMARY DISEASE PROCESSES WHICH MAY LEAD TO HEART FAILURE

Ischaemic heart disease : myocardial infarction , ischaemic cardiomyopathy

Hypertension : systemic or pulmonary

Heart valve disease : especially mitral and aortic valve disease

Pericardial disease : constrictive pericarditis , tamponade

Cognetial heart disease

High output states : cardiac beri- beri , Paget's disease , thyrotoxicosis .

CONTRIBUTING FACTORS

The following are generally not the primary cause of heart failure , but may exacerbate the physiological disturbance and therefore need to be considered when managing heart failure :

Arrhythmias

Drugs with negative inotropic action such as B-blockers, calcium antogonists , most antiarrhythmics

Withdrawal of diuretics , ACE inhibitors or digoxin or poor compliance

Fluid retention : steroids , NSAIDs ,liquorice , anaemia

Thyrotoxicosis – particularly in elderly

Pulmonary embolism

Fuild overload (e.g. transfusion , renal failure)

INVESTIGATION

In affluent societies , coronary artery disease causes severe disability and more deaths than any other disease including cancer . It manifests itself as silent ischaemia , angina , unstable angina myocardial infraction , arrhythmias , heart failure and sussen death . Although this is the result of atheromatous plaque information and its effect , the actual cause of this process is not known . However, predictive variables – known as risk factors – have been identified which increase the chance of its early development . Risk factors can be classified as modifiable and non-modifiable .

Its clearly not possible to prevent the increased risk associated with ageing a positive family history or male gender . However , there are many factors which can be usefully ameliorated by interventions . Moreover , there are some aspects of lifestyle that have been shown to reduce the risk of an acute myocardial infraction .

Risk factors are not simply additive but may be synergistically cumulative . Data from epidemiological surveys have shown for some time that combinations of risk factors generate exponential risks . This applies to both men and women . Risk factors are not static but increase with age – this may partly explain the independent effect of age . Blood pressure increases normally with age , so whatever definition is used for hypertension , the frequency of the condition will increase with age . Cholesterol and triglycerodes increase with age as do insulin resistance and body mass index.

IMPACT RISK OF FACTORS

SMOKING

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-44, March 2025
ISSN: 2749-3644

Smoking confers a fivefold relative risk for acute myocardial infraction and cardiovascular death . By comparison , stopping smoking has an almost immediate affect on reducing the cardiovascular risk by about 50% . Ex-smokers still have a higher risk than lifelong non smokers . In one study , the survival rate of patients who stopped smoking after an acute myocardial infarction at 8 years of follow-up was about 75% compared with 60% for patients who continued to smoke . Similarly reinfarction was about 38% in smokers compared with 22% in quitters . Overall smoking increases mortality by about 2.5 times and reduces absolute survival by , on average , 10 years .

PHARMACOKINETICS OF SMOKELEES TOBACCO

Nicotine is the main constituent in tobacco causing addiction and most of its harmfull effect . The level of nicotine in blood depends upon the concentration of tobacco in the product , its pH level, moisture level and the size of tobacco cutting. It is water and lipid soluble weak base and readily crosses the mucosa in unionized form. If the pH od the SLT is higher , i.e. , if it is more alkaline then more nicotine remains inunionized form , hence more absorbed resulting in higher nicotine blood level . The maximum level of nicotine is similar in both smoking and SLT but the level of nicotine is more sustained in SLT as compared to smoking where rapid peaks and troughs are seen .

Nicotine increases the blood pressure(BP) and heart rate (HR) by enhancing the release of dopamine , epinephrine , norepinephrine , vasopressin , etc and activation of sympatic nervous system . The long-term effect of SLT on BP depends on many factors including the type and amount of SLT used and level of physical activity . Increase in BP is not only because of nicotine but also because of high sodium content of the tobacco product and licorice in SLT . This has been proved by measuring the urinary sodium content in various types of SLT . The licorico increases the sodium level by inhibiting the metabolism of mineralocorticoids and thus increases the BP. The acute effects of SLT causes increase in HR and BP which one study shows increase by 19beats/min by 21/14mm Hg of BP . All these studies were in isolation and in different regions of the globe where different types of SLT products with different tobacco content and other constituents were being used . The effect of SLT on vascular inflammation , atherosclerosis and thrombosis is still inclear and needs large studies with all types of SLT products .

ALCOHOL

There has been a lot controversy around the use of alcohol in coronary artery disease . Many studies are in favour of wine as advantageous as compared to other alcoholic baverages . Some studies suggest that type of drink was not important . Heavy drinking is associated wit increased mortality , hypertension and cerebrovascular hemorrhage on the other end light -to-moderate consumption of alcohol is shown to be cardioprotective. Alcohol consumption is also associated with reduced insulin resistance and increased insulin sensivity . This effect is probably due to suppressed fatty acid release from adipose tissue and elevation of adiponectin levels during the Krebs cycle of skeletal muscles , thereby facilitating glucose metabolism. Alcohol dehydrogenease catalyses the oxidation of ethanol to acetaldehyde which is highly toxic affecting the myocardial structure and function. Any genetic variation in activity of ADH enzyme can lead to excess acetaldehyde accumulation . Smilarly cytochrome P450 2E1 is another enzyme which promotes conversion of ethanol to acetaldehyde.

OBESITY

Obesity has been increase in epidemic proportions and confers a prognostic disadvantage . Those with body mass index (weight/ht2) of 25-29 kg/m2 are considered to be overweight and those more than 32 are classified as obese . The latter have a twofold relative increase in mortality from all causes and a threefold increase in cardiovascular death . One study showed that a high body mass index was associated with an increase risk od death per se , especially when it was present in young people aged 30-44 years. More recent evidence suggests that waist circumference is an important indepent risk factor as truncal or visceral obesity appears to be more atherogenic . An expanded waist circumference is a necessary criterion for the diagnosing of the metobolitic syndrome , in addition to at least two of the four criteria. Despite the presence of thw obesity paradox – overweight and obese patients with established cardiovascular disease seem to have a more favourable prognosis than leaner patients – there is data to support purposeful weight reduction in the prevention and treatment of cardiovascular disease . Furthermore , interventional trials involving bariatric surgery for severe obesity have shown that significantly weight reduction resulted in significantly reduced mortality.

PHYSICAL ACTIVITIES AND FITNESS

There is a close inverse relationship between cardiorespiratory fitness and cardiac outcomes such as coronary disease ans death. This can be readily assessed by exercise tolerance testing. Patients with a low level of cardiorespiratory fitness have a 70% higher risk for all-cause mortsality and a 56% higher risk for coronary or cardiovascular events compared with those with a higher level of fitness. Those with intermediate

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-44, March 2025
ISSN: 2749-3644

lrevels of fitness have a 40% higher mortality risk and 47% higher coronary or cardiovascular event rate than those with higher finess. Following acute myocardial infarction or coronary artery bypass graft , cardiac rehabilitation programmes that promote exercise and weoght loss csan improve cardiometabolic risk profiles of patients.

GENDER

Men have twice the cardiovascular mortality as women at all ages and in all parts of the world. This was thought to be related to the beneficial effect of female sex hormones , especially oestrogens , as the cardiovascular risk in women increases after the menopause. However, two large randomized controlled trials showed that harmone replacement therapy did not reduce the cardiovascular risk in women ; rather , the trombotic effects of oestrogens precipitated fatal and non fatal cardiovascular events , especially early years treatment. Women appear to process differently weighted risk factors than men for reasons that are unclear.

More recent data have shown strong associated of accelerated atherosclerosis with level of testosterone in men followed up for 4-8years. Low testosterone level in men has been shown to be linked with increased mortality. Male HRT has not yet been shown to reduce cardiovascular risk , although results from animal studies are encouraging.

PSYCHOSOCIAL FACTORS

Some psychosocial factors double the risk of developing cardiovascular disease . Social class has an important effect on mortality from heart disease with people in low-income groups having an excess mortality compared with high-income earners. This is not simply related tp deprivation . Within the same working cohort cardiovascular events and mortality were found to be 2-3 times higher in those workers with low socioeconomic status compared with those with higher socioeconomic status. In fact, there is little relationship between actual average income and life expectancy. It is not just a matter of money . Mortality is 2-3 times higher in people with poor social links than in those with good social support networks . The reasons are unclear but they are not explained by differences in other known risk factors such as smoking .

DEPRESSION

Depression carries an adverse prognosis , especially in association with coronary artery disease and associated with an eightfold increase in cardiovascular death . Patients with depression have a fivehold increased mortality after acute myocardial infraction . There are no data to suggest thst treatment of depression with any specific therapy reverses the excess mortality . Depression also influences the outcome after coronary artery bypass surgery. After controlling for age , sex , number of grafts , diabetes , smoking, left ventricular ejections fraction and previous myocardial infarction , moderate depression or severe depression at the time of surgery increased the risk of death by 2.4 times and mild to moderate depression that persisted for 6 months conferred a 2.2 times increased risk of death during a 5-year follow-up period.

HORMONE REPLACEMENT THERAPY AND CARDIOVASCULAR DISEASE

Cardiovascular disease is one of the leading causes of death in women globally . In industrialized countries like UK, Northern Europe and North America coronary heart disease is most common cause of death in women . As cardiac events are very uncommon in premenopausal females which in itself shed the light over the protective influence of ovarian sex hormonies inherent to menstruation cycle. After menopause however this protective influence begins to decrease and the risk CVD tent to increase gradually equating itself to the male risk eighths decade of life. The estrogen deficiency that ensues after menopause is considered the main culprit in increasing the risk of CVD . Estrogen deficiency exerts its metabolic , hemodynamic and vascular effects which influence the cardiac risk factors directly or indirectly . In some observation studies it has been shown that the hormone replacement therapy in postmenopausal women had a lower rate of CVD and cardiac death than those not receiving HRT . However, randomized studies , heart and estrogen /progestin Replasiment Study and Women's Health Initiative showed that HRT may actually increase the risk and events of CVD in postmenopausal women.

Adverse changes in lipids and lipoproteins and in glucose and insulin metabolism accompany the onset of the menopause encouraging the development of atheroma. There is also negative impact on vascular function , which results from the loss of ovarion hormones. As the female sex hormone concentration declines there is a significant increase in the level of total cholesterol , low-density of lipoprotein , cholesterol and triglycerides whereas the high -density lipoprotein cholesterol shows a declining trend. Inderect effects are also seen in alterations ofv blood pressure , obesity, body fat distribution , clotting factors and glucose

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-44, March 2025
ISSN: 2749-3644

metabolism which all independent risk factors for CVD as well.

The combained data from various RSTs and observational studies indicate that the effect of postmenopausal HRT on CHD and total mortality is influenced by the timing of initiation and the duration of therapy . The adverse events associated with HRT are rare and even rarer in younger age women . The adverse risk with estrogen alone is quite rare. In women with confirmed CDH HRT should not be initiated for preventing future cardiovascular events .

CHOLESTEROL AND CORONARY ARTERY DISEASE CONTROVERSARY

Cholesterol has become synonymous with heart attacks . There is widespread anxiety about good and bad cholesterol. Cholesterol dictates current food preferences .

Medical journals, textbooks and conferences emphasize cholesterol but some landmark research work and a few popular books oppese this view . Clearly , both sides cannot be entirely right or wrong . When we weight the evidence for and against cholesterol and look at its chemistry , we can discern its role and the cause of confusion.

Cholesterol has been implocated in pathogenesis of atherosclerosis because od rabbit experiments, cholesterol in atheroma , premature coronary artery disease in famililal hypercholesterolemia population studies of blood lipids , efficacy of statins or PCSK9 inhibitors ; and diet studies like Diet-Heart Study and Lifestyle Heart Study . Rabbits are herbivores and plants do not contain cholesterol . Unlike rabbits omnivores tolerate high-cholesterol diets. Their natural diet contains animal products and excess cholesterol can be excreted in bile. Cholesterol is suspected because of its precense in atheromas . Low-density lipoprotein reaches wherever there is tissue damage and cell multiplication . Serum cholesterol levels therefore fall after infarction , stroke , fracture , sepsis , burns and cancers . Low-grade vascular injury and inflammation attracts circulating LDL to vessel walls their association is akin to that of wounds and bandages.

Two recent studies have raised concers about low-fat , low-cholesterol diet for preventing heart disease and reopened an old controversy that was never fully resolved . Pure , a large prospective cohort study identified a strong positive correlation between carbohydrate content of diet and hard end points .

The foremost health difference between modern and primitive diets isin their glucose content . Modern crops like sugarcane , grains and tubers contain mostly glucose. Blood levels of glucose and amino acids are tightly regulated. Excess amounts and all miscellaneous soluble nutrients like pentose organic acids alcohols etc. are mostly converted to triglycerides , enter circulation as very low density lipoproteins .

Thus , the body sends fats directly into blood stream as chylomicrons and converts all soluble nutrients including milk and fruit to triglycerides before permitting them to enter the circulation.

DIABETES MELLITUS

This is a major risk factor for premature vascular disease , stroke , myocardial infarction and death . Diabets increases the risk of developing coronary heart disease by 1.5 times at age 40-49 and by 1.7 times at age 50-59in men and by 3.7 times at age 40-49 and 2.4 times at age 50-59 in women . There are data that show that diabetic control is important for cardiovascular risk , with correlations between cardiovascular events ischaemic heart disease and death rate and glycosylated haemoglobin. Much more effective risk reduction is associated with aggressive treatment of the the commonly associated hypertension lipid abnormalities and obesity in the diabetic patients .

b-ADRENOCEPTOR BLOCKING DRUGS

These drugs reduce mortality by about 10-15% at the time of acute myocardial infarction and have also been shown tp reduce late mortality after myocardial infarction by about 20-25% . However, in the setting of chronic stable angina there is no evidence that B-blockers reduce the incidence of myocardial infarction or prolong survival.

ANGIOTENSIN-CONVERTING ENZYME (ACE) INHIBITORS

These drugs have proven benefit in reducing cardiovascular death both in heart failure and following acute myocardial infarction . In patients with stable coronary disease but without heart failure or left ventricular dysfunction , HPOE and EUROPE studies have shown that patients could again additional cardiovascular protection with an angiotensin-converting enzyme inhibitors. These negative results could be explained by the fact that the study did not include patients with diabetes or high cardiovascular risk, 70% of patients were taking lipid-lowering therapies , more than 90% were treated with aspirin and many patients had undergone prior revasculaeisation . In a subsequent meta-analysis of these and other studies , ACE inhibitors should be considered for all patients with coronary artery disease . However , this is optional in lower risk patients in whom cardiovascular risk factors are well controlled and revascularization has been performed.

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-44, March 2025
ISSN: 2749-3644

There are data to show that hypertensive patients treated with ACEinhibitors develop atrial fibrillation less frequently compared with those taking other anti-hypertinsive drugs including b- blockers, for example.

CONCLUSION

Although cardiovascular disease continues to exert major socioeconomic consequences, there has been substantive fall in death rates from coronary heart disease over the past decades. Recent evidence highlights the crucial impact of risk factors modification by way or primary and secondary prevention , revascularization stratigies , as well as the modern care of acute coronary syndromes . From overall perspective , aforementioned ridsk factors can influence heart normal function directly or indirectly , also , create several types of cardiovascular disease . In the emphasized paragraphs illustrated enough valuable preventical methods to avoid cardiovascular disease.

LITERATURES

1. Standart treatment guidliness. Ministry of health . Professor Anthony Smith and Mr Leweni Mocevakana . E-mail : secretary.health@naurugov.nr 33-66 chapter
2. CSI Cardiology Update 2018 Kewai C Goswami . ISNB: 978-93-5270-4
3. Interventional Cardiology Kevin S Channer and Ever D . Grech ISBN: 978-1-4051-7067-3
4. http//www.escardio.org/guideliness