**Risk factor for CHD:**

|  |  |
| --- | --- |
| 1. Non-modifibale /fixed factors | 1. Modifiable factors |
| * Age – increase with age. * Sex – More in male * Family history * Genetic factors * Personality (?) | * Cigarette smoking * High blood pressure (Hypertension) * Elevated serum cholesterol (Hyperlipidemia) * Diabetes. * Obesity * Sedentary habits * Stress |

**Preventive Measures of CHD:** For the prevention of CHD. An expert committee of WHO recommended the following strategies –

* **Primary prevention:** It involves application of measures to modify the risk factors in the absence of clinical manifestation of the disease. Primary prevention includes –

1. **Population strategy:**
2. **Prevention in whole populations:** This strategy should be based on mass approach strategy centers round the following key areas:
3. **Dietary changes:**

* Reduction of fat intake
* Limitation of saturated fat intake
* Reduction of cholesterol below 100 mg per 1000k cal per day.
* Complex CHO intake
* Avoidance of Alcohol

1. **Prevention of smoking :** by –

* Encouraging
* Effective information to the whole population.
* Health education
* Fiscal measures
* Legislation

1. Maintenance blood pressure within normal values in respect of age of sex.
2. Regular physical activity.
3. Primordial prevention in whole population: It involves prevention the emergence & spread of CHD risk factors & life styles that have not yet appeared or become endemic.
4. **High risk strategy:**
5. Identify the risk by estimation of serum cholesterol.
6. Specific advice e.g. treatment of HTN, avoidance of smoking.

* Secondary prevention: It involves measures put into practice after the disease has been apparent so as to prevent recurrence, delay progress & effectively hinder complications. It involves –
* Cessation of smoking.
* Control of HTN & diabetes.
* Healthy nutrition
* Exercise promotion
* **Clinical trial with –**
* Beta Blockers
* Anticoagulants
* Lipid lowering agent (clofibrate)
* Anit-thrombotic agent (aspirin).

**Hypertension**: Hypertension is defined as persistently raised systolic blood pressure of 140 mmHg or greater and diastolic blood pressure of 90 mmHg or greater in subjects who are not taking antihypertensive medication.

Classification of hypertension:

1. **Primary / idiopathic/ essential hypertension:** No specific underlying cause id known and comprises more than 90% of all hypertensive patients.
2. **Secondary hypertension:** underlying cause of secondary hypertension are –
3. **Renal disease:**

* Acute and chronic glomerulonephritis.
* Pyelonephritis.
* Renal vascular disease.
* Polycystic kidney disease

1. **Endocrine disease:**

* Phaeochromocytoma.
* Cushing’s syndrome.
* Conn’s syndrome.
* Hyperparathyroidism
* Acromegaly.
* Primary hypothyroidism.
* Thyrotoxicosis.

1. **Coarctation of aorta.**
2. **Pregnancy.**
3. **Druge:**

* Oestrogen containing oral pill.
* Anabolic steroids
* NSAIDs.

**Risk factors for hypertension:**

1. **Non-modifiable / fixed factors:**
2. **Age:** blood pressure rises with age in both sexes.
3. **Genetic factors:** The evidence of genetic factors is based on twin & family studies the BP value of monozygotic are usually more than those of zygotic twins.
4. **Family history:** Family studies confirmed that the children of normotensive parents have 3% possibility of developing HTN whereas this possibility is 45% in children of two hypertensive parents.
5. **Modifiable factors:**
6. Obesity.
7. Salt intake
8. Saturated fat intake
9. Alcohol taking
10. ↓ Physical activity.
11. Environmental stress.
12. Other factors: OCP, noise, vibration, temperature, humidity.

**Prevention of HTN:**

1. **Primary prevention:**
2. **Population strategy:** This involves a multifactorial approach, based on the following nonpharmacotherapeutic interventions-

* Nutrition
* Reduction of salt intake (less than 5 gm/day).
* Moderate fat intake
* Avoidance of alcohol.
* Restriction of energy intake appropriate to body needs.
* Weight reduction.
* Exercise promotion Behavioral changes.
* Health education.
* Self-care.

1. **High risk strategy:**
2. **Secondary prevention:**
3. Early case detection
4. Treatment.
5. Patient compliance.

**Stroke:**

Who defined stroke as “rapidly developed clinical signs of focal (or global) disturbance of cerebral function; lasting more than 24 hours or leading to death, with no apparent cause other than vascular origin”.

**Syndromes of stroke:**

1. **Ischaemic Stroke:**

* Lacunar infarct
* Carotid circulation obstruction
* Vertebrobasilar obstruction

1. **Haemorrhagic stroke:**

* Spontaneous intracerebral haemorrhage
* Subarachnoid haemorrhage
* Intracranial aneurysm
* Arteriovenous malformations

**Control of stroke:**

1. Control of arterial hypertension
2. Early detection and treatment of transient ischaemic attack(TIA).
3. Control of diabetes.
4. Elimination of smoking.
5. Prevention and management of other risk factors.
6. Treatment of acute stroke to control complications.
7. Facilities for the long-term health personnel and of the public.

**Diabetes mellitus:**

Diabetes mellitus is a clinical syndrome characterized by hyperglycaemia due to absolute (reduced insulin secretion) or relative (reduced insulin ction) dediciency of insulin.

**Clinical Classification of diabetes mellitus (WHO classification):**

1. **Diabetes mellitus (DM).**

* Insulin-dependent diabetes mellitus (IDDM, Type-1)
* Non-insulin dependent diabetes mellitus(NIDDM, Type-2).
* Malnutrition related diabetes mellitus (MRDM)
* Other types (secondary to pancreatic, hormonal, drug-induced, genetic and other abnormalities).

1. **Impaired glucose tolerance(IGT).**
2. **Gestational diabetes mellitus(GDM).**

**Risk factors for DM:**

1. Family history of DM.
2. More diet.
3. Less physical activity i.e. sedentary lifestyle.
4. Obesity.
5. Heart disease, valvular disease.
6. Age group 40 years and above.
7. Cataract in relatively early age.
8. Repeated infection, malnutrition in early age.
9. Low socioeconomic condition.
10. Genetic syndrome: Down syndrome, Turner’s syndrome, and Klinefelter’, syndrome.

**Prevention and care of diabetes mellitus:**

1. **Primary prevention:**
2. **Population strategy:**

* Primordial prevention of emergence of risk factors in countries in which they have not yet appeared.
* Maintenance of normal body weight through adoption of healthy nutritional habits and physical exercise.
* The nutritional habits include an adequate protein intake, a high intake of dietary fiber and avoidance of sweet foods.
* Elimination of protein deficiency and food toxins.

1. **High-risk strategy:**

* Avoidance of sedentary life-style, over-nutrition and obesity.
* Avoidance of alcohol.
* Avoidance of diabetogenic drugs such as oral contraceptive.
* Reduction of factors that promote atherosclerosis e.g. smoking high blood pressure, elevated cholesterol and high triglyceride levels.

1. **Secondary prevention:**

* Adequate treatment of diabetes mellitus.
* Routine Checkup of blood sugar, urine for protein and ketone bodies, blood pressure, visual acuity and weight should be done periodically.
* There should be and estimation of glycosylated haemoglobin at half-yearly intervals.
* Self-care i.e. the diabetic should take a major responsibility for his own care with medical guidance.
* Home blood glucose monitoring.

**Tertiary prevention:**

* Organization of specialized clinics (diabetic clinics) and units for detection and management of complications of diabetes such as blindness, kidney failure, coronary thrombosis, gangrene of lower extremities etc.