



Nutrition in Cardiovascular disease

UCMS Sem 6 LT2

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Nutrition in Cardiovascular disease

CVD Risk factors:

Major risk factors:

- Hypertension
- Age (older than 45 years for men, 55 years for women)
- Diabetes mellitus
- Estimated GFR < 60 mL/min
- Microalbuminuria
- Family History of premature CVD (men < 55 yrs, women < 65 yrs)

Modifiable Risk Factors:

- Hypertension
- Lipoprotein profile (LDL and TG levels elevated, HDL low)
- Physical inactivity
- Obesity
- Blood Glucose levels
- Atherogenic diet
- Cigarette smoking

Non-modifiable factors:

- Gender (male)
- Age
- Heredity
- Family history

Nutritional management for CVD

- **Prudent diet:** Basically a normal healthy diet which is low in cholesterol and saturated fats. To achieve this following dietary recommendations :
 - **Energy:** Hypocaloric diet based on one's IBW is given
 - **Fats :** modify fats both in quantity and quality to less than 20-30% of energy. Type: SFAs (derived from- butter, milk fat, meat fat, hydrogenated oils) tend to raise serum cholesterol. More of PUFA and MUFA (vegetable oils –corn, safflower, sunflower, mustard, olive oils) should be given.

- **Energy requirements:**
 - Ideal Body wt. = $106\text{lbs} + 66\text{ lb/inch} = 65\text{ kgs}$
 - referring table for estimating energy for an obese individual with sedentary activity = 1500 Kcals approx.
- **Protein requirements = 20% of 1500 Kcals**
- **Carbohydrate requirements = 60% of 1500 Kcals**
- **Fat requirements = 20% of 1500 Kcals**

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- **Food exchange lists** are used to plan out the different quantities of foods that are included under different food exchange groups - cereal, pulses, meat, vegetable, fruits, fat.
 - Further **these are distributed throughout the day's schedule for a meal plan:**

Nutritional management for CVD

- **Cholesterol:** reduce dietary cholesterol by avoiding –foods high in cholesterol – egg yolk, organ meats – liver, kidney, brain, meats fats, whole milk etc.
- **Proteins:** Intake is same as for a normal diet 1g/kg/ body weight.
- **Carbohydrates:** include more of complex starches than simple sugars. Soluble fibres increase intestinal transit time, delay gastric emptying time, slow glucose absorption – whole pulses and legumes.

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- **Minerals and Vitamins:** In normal amounts in the diet. Diets should be supplemented with more of retinol sources – yellow-orange coloured fruits and vegetables.
 - **Sodium and Salt restriction:** Intake of additional salt in meals and that in processed foods which are rich in salt should be discouraged.

Nutritional management for CVD - Diet and Feeding pattern

- **Small and frequent meals** with in between meal snacks should be provided according to the blood glucose levels at different meal timings – individualized approach is beneficial.

Foods to be avoided or restricted in amounts:

- Animal foods high in SFAs and cholesterol – eggs (yolk), organ meats, fatty meats, whole milk, cream, butter, ghee, khoa, cheese, hydrogenated fats, trans fats.
- Glucose, sugar, jaggery, honey, sweets of different types, chocolates, candies.
- Potatoes, yam, arbi, sweet potatoes, mangoes, grapes, bananas, alcohol, fried foods- paranthas, pooris, pakoras, namkeens, mathris, cakes, pastries etc.

Foods to be used freely:

- Green leafy vegetables, tomatoes, cucumber, raddish, lemon, black coffee and tea without sugar.

Nutritional Key aspects for managing Acute CVD –MI / Heart attack (Decompensated heart disease)

- There's severe damage to heart – no longer able to maintain normal circulation to supply nutrients and oxygen to tissues – requires prompt medical measures including bed rest, drug therapy and oxygen – essential to relieve strain on heart.
- **Nutritional management involves:**
 - **Energy:** a hypocaloric diet initially to afford rest to heart – metabolic activity is decreased - may be continued for obese patients.
 - **Lipids:** A '*Prudent diet*' needs to be given to control amount and type of fat for most needs.
 - **Sodium:** A moderate to strict restriction of less than 3g/day will help control fluid accumulation.
 - **Diet and feeding pattern:** small and frequent meals – soft in texture easy to digest should be given.

Nutritional Key aspects for managing Chronic CHD-Congestive heart failure (Compensated heart disease)

- In chronic CHD- congestive heart failure may develop over a period of time. Myocardium gets progressively weakened and not able to maintain normal output. – results in fluid imbalance – causes oedema – pulmonary oedema and breathing problems as well.
- **Nutritional management goals** are to give adequate nourishment and minimum strain to heart and prevent oedema.

Nutritional management involves:

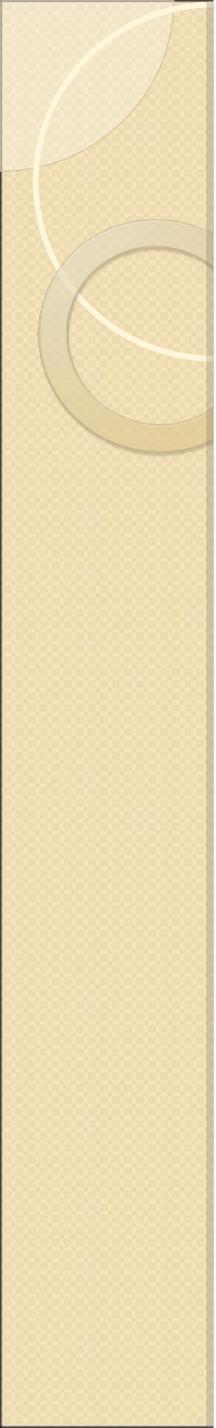
- **Energy:** Wt. loss leads to reduction in work of heart, slowing heart rate, drop in B.P. and improvement in cardiac efficiency. A hypocaloric diet benefits not only overweight but normal wt. patients also.
- **Proteins:** Normal intake of 1g /kg b.wt. is advised.
- **Fat:** Both amount and type of fats have to be modified, general prudent diet is suitable for such patients. Fats < 20% Energy.
- **Carbohydrates:** Easily digestible CHO's should be included to afford rest to heart.
- **Sodium:** Diet has to be restricted in Na and salt due to cardiac oedema.
- **Fluids:** intake is restricted to match the output of urine in severe oedema.
- **Diet and feeding pattern:** small and frequent meals – soft in texture easy to digest should be given.

Hypertension

- It is the sustained elevated arterial blood pressure measured indirectly by an inflatable cuff and sphygmomanometer.
- **Dietary Approaches to Stop Hypertension (DASH):** studies demonstrated efficacy of dietary change in preventing hypertension or lowering blood pressure in persons with normal pressures.
- **MNT goals are:**
 - To achieve a gradual wt. loss in overweight. And obese individuals and maintain their wt. slightly below the normal wt.
 - To reduce Sodium intake.
 - To maintain adequate nutrition.

Nutritional management involves:

- **Energy:** A wt. loss in obese hypertensives is accompanied usually with a fall in B.P. Also, majority of hypertensive patients are overweight or obese so a hypocaloric diet is recommended.
- **Proteins:** Protein should contribute 15-20% energy in a low energy diet, a normal protein intake is advised.
- **Fats:** Quantity of fat should be reduced to provide about < 20% energy in the diet. Also type of fat should be modified to increase P/S ratio.
- **Carbohydrates:** Rest of energy that is, about 60-65% should be from CHO's and more of complex CHO's and foods high in fibre to be given.
- **Sodium:** Moderate to mild (<3g) restriction is recommended for treatment of hypertension which would be effective in treating mild to moderate hypertension.



THANK YOU