NUTRITION PLANNING FOR ESRD PRE AND DURING DIALYSIS

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PREVALENCE OF MALNUTRITION IN CRF

- 40-50% malnourished
- 25-75% on Hemodialysis malnourished
- 20-50% on CAPD malnourished

Ref: Nephro Dial Transplant (2007) 22 (Suppl 2)

NUTRITION RELATED FUNCTIONS OF KIDNEY

- Maintains body composition
- Excretes waste products
- Produces and secretes enzymes and hormones

ETIOLOGY OF MALNUTRITION IN CRF

- **Poor food intake**

  - Anorexia, vomiting and nausea due uremic toxicity
  - Diet restrictions
  - Psychological and social factors.
- **Hormonal derangements**
  - Decreased insulin activity
  - Increased glucagon, PTH, leptin

cont…

ETIOLOGY OF MALNUTRITION IN CRF

- Acidosis
- Increased BEE
- Loss of nutrients in dialysate
- Chronic blood loss

NUTRITIONAL ASSESSMENT

- Diet history
- Changes in food intake
- Weight history
- Uremic symptoms
- Anthropometry
- Serum bio-chemistry
- Social/cultural factors

GOALS OF NUTRITION MANAGEMENT IN CRF

- Achieve / maintain optimal nutritional status
- Prevent net protein catabolism
- Prevent or minimize uremic symptoms
- Modify diet to meet other nutrition-related concerns like DM, heart disease, etc
- Maintain fluid status
- Maintain blood chemistries
- Retard progression

ENERGY

- Before and during dialysis
  - Normal weight - 35 cals /kg
  - Obese - 20 to 30 cals /kg (DBW)
  - Underweight or catabolic - 45 cals /kg
- Protein sparing

FAT

- 30%of total energy intake
- From unsaturated source

PROTEIN

- Restrictions
  - 20g
  - 30g
  - 40g
- Retards the rate of progression
- Decreases uremic symptoms
- Delays initiation of dialysis

20g PROTEIN RESTRICTION

- Veg - 300ml milk & its products
- Non-Veg - 50g of nv or 1 egg & 100ml milk & its products

30g PROTEIN RESTRICTION

- Veg - 350ml milk & its products
- Non-Veg - 75g of nv or 1 egg & 150ml milk & its products

40g PROTEIN RESTRICTION

- Veg - 400ml milk & its products
- Non-Veg - 75g of nv or 1 egg & 200ml milk & its products

PROTEIN REQUIREMENTS DURING DIALYSIS

Hemodialysis - 1.0 to 1.2g/kg

CAPD - 1.2 to 1.4g/kg

- Increased catabolism
- Loss in dialysate
- Provide 50% high biological value

POTASSIUM

- Individualized according to physician's prescription.
- To prevent hyperkalemia / hypokalemia

LOW POTASSIUM OR AVOID POTASSIUM LOAD

- <60meq potassium/day.
- Vegetables to be cooked well.
- 75g of fruit/day permitted.
- Foods high in potassium avoided.
- Leaching of vegetables not required.

NO POTASSIUM OR POTASSIUM FREE

- <20meq potassium/day.
- All vegetables and fruits avoided.
- Foods high in potassium avoided.

SALT INTAKE
Individualized according to physicians advice.

SALT RESTRICTION

- Food without salt and 1g salt pkts served as per prescription
- Foods with salt avoided.

LOW SALT / AVOID SALT LOAD

- Food cooked with less salt & extra not served
- Foods high in salt avoided.

FLUIDS

- Individualized according to physician's prescription.
- Restriction includes drinking water, coffee, tea, buttermilk, rasam and all foods liquid at room temperature.

PHOSPHOROUS

To prevent

- Metastatic calcification
- Decreased serum Ca levels with increased PTH secretion
- Renal osteodystrophy

CALCIUM

To prevent

- Hypocalcemia
  - Vit D metabolism altered
  - Decreased absorption from intestine
- Hypercalcemia
  - Vit D therapy
  - Ca supplements as PO4 binders

ADEQUACY

Water – soluble vitamin supplementation

- Due to restrictive diet
- Decreased food intake
- Altered metabolism of certain vitamins.

Iron supplements

- Impaired intestinal absorption
- High blood loss

NUTRITION COUNSELLING

- Assess current diet intake
- Assess nutrition needs
- Individualized intensive counseling
  - Role of dietary nutrients for good health
  - Major nutrients associated with renal diet
  - Recommended nutrient intake
  - Psychological support mandatory

THANK YOU