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M.A. Sem – II Home Sc.

Therapeutic Nutrition—CC 5

Unit-II Typhoid Fever

Meaning:

Typhoid is a bacterial infection that can lead to a high fever, diarrhoea, and vomiting. It can be fatal. It is caused by the bacteria *Salmonella typhi*.

The infection is often passed on through contaminated food and drinking water, and it is more prevalent in places where handwashing is less frequent. It can also be passed on by carriers who do not know they carry the bacteria.

The bacterium lives in the intestines and bloodstream of humans. It spreads between individuals by direct contact with the faeces of an infected person. No animals carry this disease, so transmission is always human to human.

Symptoms:

Symptoms normally begin between 6 and 30 days after exposure to the bacteria. The two major symptoms of typhoid are **fever** and **rash**. Typhoid fever is particularly high, gradually increasing over several days up to 104 degrees Fahrenheit, or 39 to 40 degrees Celsius.

The rash, which does not affect every patient, consists of rose-coloured spots, particularly on the neck and abdomen.

Other symptoms can include:

- Weakness and fatigue
- abdominal pain
- constipation
- diarrhoea
- headache
- vomiting
- sweating
- dry cough
- loss of appetite and weight loss

Causes:

Typhoid fever is caused by a type of bacteria called *Salmonella typhi*.

It spreads by:

- Working and travelling to areas where typhoid fever is established.
- Handling *Salmonella typhi* bacteria as a clinical microbiologist.
- Have close contact with someone who is infected with typhoid fever.
- Drinking contaminated water.
- Poor sanitation, infected human waste can contaminate the water supply.
- People who drink contaminated water or eat food washed in contaminated water can develop typhoid fever.

Complications:

(A) Intestinal bleeding or holes

- The most serious complications of typhoid fever — intestinal bleeding or holes (perforations) in the intestine — may develop in the third week of illness, causing intestinal contents to leak into abdominal cavity and triggering signs and symptoms such as severe abdominal pain, nausea, vomiting. This life-threatening complication requires immediate medical care.

(B) Metabolic changes

Due to elevation of body temperature several metabolic changes occur inside the body:

- The basal metabolic rate (BMR) increases 7% for every 1^oF rise in body temperature.
- Due to the increased BMR the requirement of energy increases, but the oral intake of the patient decreases, it results in the depletion of glycogen stores of the body and loss of body weight.
- Subsequently to fulfil body's need protein catabolism increases, which results in additional burden on kidney to excrete nitrogenous waste.
- Excess loss of water due to perspiration.
- Increased loss of mineral like sodium, potassium, chloride etc.
- Adipose tissue is depleted.
- Loss of appetite.

Prevention:

Apart from drugs, it can be prevented by the following rules:

- Drink bottled water, preferably carbonated.
- If bottled water cannot be sourced, ensure water is heated for at least one minute before consuming.
- Be ware of eating anything that has been handled by someone else.

- Avoid eating at street food stands, and only eat food that is still hot.
- Do not have ice in drinks.
- Avoid raw fruit and vegetables, peel fruit yourself, and do not eat the peel.

Dietary Modification:

The diet should be planned in such a manner that it should provide adequate nutrition for various body functions of the ill person and also to taste well.

The nutritional requirements are discussed below:

1. **Energy:** Due to increased BMR, the requirement may increase by up to 50%, based on the extent of the fever, its duration and associated weight loss. If patient cannot consume food, high energy drinks should be given.
2. **Protein:** Protein requirement is related to the severity and duration of fever. It should be increased by 1.5-2 times the normal requirement i.e. 1.5-2gm/ kg body weight per day. To decrease the loss of tissues, good quality protein foods comprising of all essential amino acids and of high biological value e. g. eggs, meat, milk should be used liberally.
3. **Carbohydrates:** To restore depleted glycogen stores, easily digestible carbohydrates should be given liberally e.g. glucose, sugarcane juice, and honey.
4. **Fats:** Fats are required only to increase the energy intake but these should be taken only in the emulsified form e.g. Cream, butter whole milk, olive oil.
5. **Vitamins:** Requirements of B-complex vitamins increases in relation to increased energy needs. Vitamins A and C are beneficial in preventing infection.
6. **Minerals:** The electrolytes like sodium, potassium and chloride are lost excessively during increased perspiration, therefore, salty soups, fruit juice; milk should be included in the diet to compensate the loss of electrolytes. Iron supplements are needed to prevent anaemia.

7. Fluids: An average daily consumption of 2- 5 litre fluids including water, fruit juice, coconut water, electral is advised to make up increased sweat and other losses.

Dietary Patterns:

High protein, high calorie, low fibre, bland, soft diets should be given in the beginning. Small frequent meals help to meet the increased nutritional requirements. Food should be bland and easily digestible

Foods to be included:

- Fluids-soups, fruit juice, milk and milk beverages, coconut water
- Egg, cheese, fish, meat, poultry
- Low fibre foods-washed dal, rice, papaya, banana, cheeku, well cooked vegetables
- Steamed foods-suji, idli, upma, dhokla

Foods to be avoided:

- High fibre foods-dalia ,whole wheat flour, whole pulses, pulses with husk
- Spices, pickles, chutney, sauces
- Fried foods-samosa, pakoras, poories, paratha
- Strong flavoured vegetables-onion, garlic, turnip, raddish, cabbage, capsicum
- Deserts-cake, pastry, halwa, laddoos

One day menu plan:

- Morning → lemon tea /barley 1 glass
- Breakfast → Dalia -1 bowl, milk with corn flacks boiled egg -1/toast with butter /orange juice

- Lunch → meat /vegetable soup, soft chapatti-2, cooked and mashed potatoes, moong dal, custard
- Evening → fruit juice /glucose water and biscuits-2
- Dinner → Soup, soft chapatti-2, boiled vegetables-1cup, kheer.

Ref.

1. Fundamentals of Foods, Nutrition and Health, S.R.Mudambi and M.V.Rajagopal (2007).
2. Food, Nutrition And Health , Dr. Shashi Goyal and Pooja Gupta (2012) .
3. Typhoid Fever ,Wikipedia.