

B BLOCK

Ground Floor.—Observation, and Convalescent cases.
First Floor.—Surgical Wards.
Second Floor.—Medical Wards.

In each floor there are two wards with 20 free beds separated by a ward kitchen in the centre. Each floor possesses a linen room also.

C BLOCK

Ground Floor.—Out-Patient Department—waiting hall, three consulting rooms, out-patient dressing room and operation theatre, dark room, dispensary, hospital, chaplain's room, Nursing Superintendent's office and general store.
First Floor.—Laboratory, drug room, Medical Officers' offices, clerical branch, lecture hall for students, library and record room.
Second Floor.—Tuberculosis pavilion with 10 free beds and 2 private rooms for paying patients constructed with sanitary fittings and linen rooms.

D BLOCK.

This block is also constructed with three floors in which there are sanitary fittings and linen rooms, etc., similar to the other blocks. It contains 29 rooms (for paying patients) excluding a kitchen in each floor. Each room is well furnished with modern and valuable furniture.

Since the official opening by the Hon'ble Dr. T. S. S. Rajan the hospital has been very busy and at present the wards are full.

QUESTIONS AND ANSWERS ON DIABETES MELLITUS

By Mr. CHRISTODAS MOSES, Student Nurse, American Mission Hospital, Miraj, S.M.C.

1. What is Diabetes?

Diabetes Mellitus is a disease of metabolism characterized by the presence of sugar in the urine 'varying from a trace to 2 lbs. in 24 hours'¹ and the presence of an excess of sugar in the blood. The percentage of sugar in the urine seldom amounts to as much as 10 per cent. This is a disease common in middle life, but unusual in the young and rare in children. It seldom occurs in persons under forty unless they are fat.

2. What is the cause of diabetes?

Diabetes Mellitus is caused by the lack of secretion of a certain hormone by the pancreas. This may result gradually from the disease of the gland which sometimes is associated with chronic gall-bladder disease, from obesity or due to constant strain on the pancreas, from an overbalanced carbohydrate diet, from arterio-sclerosis, from complicating diseases of the thyroid or pituitary gland.

3. What changes take place in the pancreas in diabetes?

The disease process is principally a functional disturbance of the islands of Langerhans of the pancreas. As a result, the secretion of insulin is diminished and sugars and fats are not properly broken down; glucose accumulates in the blood and when the concentration is more than 0.2 per cent. the excess is usually eliminated in the urine.

4. How can you help to prevent the development of diabetes in children and adults who have a tendency and hereditary disposition towards this disease?

¹ *Diabetic Manual*. By Dr. Joselin, ch. IV, p. 36.

i. By explaining to them the dangers of unbalanced diet, and telling them of easy ways by which to escape it, such as:—

1. to regulate the diet.
2. to regulate exercise, to encourage sufficient sleep, to have energetic yet restful vacations and to avoid sedentary life.
3. to choose an occupation free from nervous tension or worry of any kind.

ii. By explaining the possibility of transmission of the disease, i.e. two diabetics should not marry one another and have children; also a diabetic should not marry from a family of diabetics.

5. How is a diabetic treated?

The object of the treatment of diabetes is to bring about the use of sugar energy by the body rather than the loss of sugar in urine. This is accomplished by (a) diet, (b) insulin and (c) exercise.

6. How does a diabetic diet differ from a normal diet?

The difference in diet is very little if the disease is mild or if he takes an adequate dose of insulin. Otherwise the patient is given a little less carbohydrate and a little more protein and fat. Concentrated sweets are avoided and over-eating forbidden.

Normal and diabetic diets compared for adults weighing 60 kilograms (132 lbs.).¹

Food	Comparison in grams		Comparison in calories.	
	Normal	Diabetic	Normal	Diabetic.
Carbohydrate	250	150	1000	600
Protein	60	75	240	300
Fat	60	90	540	810
Total ...			1780	1710

7. How is the energy value of food measured and how much food will a patient need?

We measure the energy value of foods in terms of heat-units or calories, since heat can produce energy and energy is the ability to perform work. A calorie is the amount of heat necessary to raise the temperature of 1000 cc. of water by one degree centigrade. As a rule a patient requires 25 to 30 calories per kilogram or 2½ pound body weight, when he is at rest—basal requirement. Those who do work need more according to the kind of work they do—work calories. The diet is ordered by the physician. If the urine becomes free of sugar and the physician desires to increase the patient's weight other articles of diet are gradually added until the urine begins to show sugar. The patient is then kept on the diet which gives no sugar in urine. If however this is insufficient to maintain nutrition more food is added and more insulin given. The nurse however because of the contact with the patient should find out the food he likes or dislikes, his food habits, racial customs, religious restrictions of foods, etc. The food should be prepared and served warm and in an attractive manner.

8. What class of foods most easily causes sugar to appear in the urine?

Carbohydrate foods—sugar and starch.

'Sugar enters the blood as fast as a child runs.

Starch enters the blood as fast as a child walks.

Starch in vegetables enters the blood as slow as a child creeps.'²

¹ *Diabetic Manual.* By Dr. Joselin, ch. IX, p. 77.

² *Diabetic Manual.* By Dr. Joselin, ch. X, p. 101.

Carbohydrate in the diabetic's diet. One should provide the diabetic patient with vegetables in a wide variety and take in definite pains to get the best and to prepare them with utmost care. The following are some of the common carbohydrate foods used: Lettuce, cabbage, potatoes, nuts, fruits, oatmeal and bread in different forms.

Protein in the diabetic's diet. The quantity of protein required by a diabetic patient varies with age, weight and activity of the case as well as with the condition of the kidneys. Protein stimulates the metabolism more than any other kind of food and favours acidosis. Vegetable proteins give rise to less carbohydrate than do animal proteins; but meat protein is a better blood builder. The following are some of the protein foods used: meat, chicken, lean ham, bacon, broths, fish, shellfish, salmon, sardines, oysters, eggs, cheese, curds, string beans, dhal, peas etc.

Fat in the diabetic's diet. This forms about half the total calories of the diabetic patient's diet. Fat is the chief source of dreaded acidosis. When properly balanced with carbohydrate and protein it is harmless. This is most agreeably taken as cream; but patients tolerate butter better than cream.

Liquids. It is rarely necessary to restrict liquids. The control of the diabetes, with diet, insulin, and exercise lessen the quantity of the sugar to be excreted and this usually leads to a corresponding diminution in thirst, and in the volume of the urine. Ice-water and cool drinks are discouraged, as they invariably call for the expenditure of calories to warm them to blood-heat.

Mineral salts. They are substances like lime, phosphorus, sulphur and common salts. But for common salt enough fluid would not remain in the tissues. Salts aid the proper work of the kidneys, digestive mechanism and the building of tissues.

Vitamins. Vitamins are very essential for growth, nutrition and the function of the nervous system. When they are absent in the diet, characteristic symptoms result.

9. What is insulin?

Insulin is a specific remedy for diabetes, obtained from the islands of Langerhans of the pancreas of animals. It stimulates the utilization of sugar in the body. Insulin allows a diabetic to eat more, to work more, to sleep undisturbed, to ward off complications of diabetes and to postpone the coming on of old age. Insulin acts most powerfully about one hour after it is injected. It is therefore injected half hour before a meal to meet the highest tide. When insulin is required twice in twenty-four hours it is usually given before breakfast and before evening meal. Protamine-insulin is a compound formed by the mixture of the usual insulin hydrochloride and a protamine. This is advantageous for its slow rate of absorption, the effect lasts for a period of 24 to 30 hours; so the frequency of injections could be reduced. There will be fewer reactions due to the gradual drop in the blood sugar.

10. Why exercise is important for a diabetic patient?

Exercise is a great aid to diet and insulin. When exercise works diet and insulin have less to do: the carbohydrate is better burned and blood sugar is lowered.

11. How is urine examined?

Examination of urine. 24 hours urine is preserved in a cool place in a big bottle. Thymol 10 per cent in alcohol 1 teaspoon is put in the bottle for each 24 hours specimen; this will keep the sugar of the urine from decomposing. The patients are taught to examine their urine themselves every day.

For sugar. Pour 1 teaspoon (5 cc.) Benedict's solution into a clean test tube and add 8 to 10 drops of the urine to be tested. Shake and place in water that is boiling, for 5 minutes. Remove the tube and examine. In the presence of sugar the entire body of the solution is filled with a precipitate which may be greenish yellow or red in colour. If we can read print through the solution it can be disregarded. If a heavy greenish precipitate, it usually means there is a trace of sugar. The appearance of a yellow sediment indicates a few tenths per cent and a red sediment more than 1 per cent.

12. What are the complications of diabetes and how do diabetic coma and insulin reactions differ?

The complications of diabetes are, acidosis, diabetic coma, gangrene, tuberculosis, cataract, arterio-sclerosis, neuritis, infections such as pruritis, boils and carbuncles.

The difference between diabetic coma and insulin reactions, history, symptoms and signs and differential diagnostic points.

	Diabetic coma	Insulin reactions
1. Onset	Slow, days	Sudden, minutes.
2. Food	Too much	Too little.
3. Insulin	Too little	Too much.
4. Presence of infection	Usual	None.
5. Thirst	Extreme	Absent.
6. Hunger	Absent	Frequent and extreme.
7. Vomiting	Common	Seldom
8. Pain in abdomen	Frequent	Absent.
9. Fever	Frequent	Absent.
10. Skin	Dry	Moist.
11. Tremor	Absent	Frequent.
12. Vision	Dim	Double.
13. Appearance	Extremely ill, florid	Pale, weak and faint.
14. Respiration	Exaggerated (air hunger)	Normal.
15. Mental State	Restless and distressed gradually approaching unconsciousness	Apathetic, irritable, hysterical gradually approaching unconsciousness.
16. Urine sugar	Present	Absent or always absent in the second of 2 specimens.
17. Response to treatment.	Gradual improvement with insulin.	Sudden improvement in minutes with carbohydrate by mouth and rectum intravenously or subcutaneously.

13. How a diabetic patient is educated?

A diabetic patient at the beginning of the treatment should be made to understand that he is taking a course in diabetes. For successful graduation he should demonstrate his ability—

1. To test the urine for sugar.
2. To record a summary of his diet of the previous day.
3. To explain the quantity of carbohydrate it contains.
4. To describe what he is to do if sugar returns in the urine.
5. To describe what he is to do if he feels ill and is possibly threatened with diabetic coma.
6. To explain the reactions and the treatment of an insulin reaction.

7. To take insulin himself and to know when to take it.
8. To state the dangers of (a) too much insulin and (b) of its total omission.
9. To care for his feet in order to avoid blood poisoning and gangrene which are fatal to many diabetics.

ARTHRITIS

By Mr. S. JAMES, Student Nurse, Scudder Memorial Hospital, Ranipet

Arthritis is a disease which may be classified into two, as Atrophic or Proliferative or Rheumatoid Arthritis; and Hypertrophic or Degenerative or Osteo Arthritis. The atrophic arthritis occurs below the age of forty and seems to be more common in women than men. When it develops in children it is known as 'Stills' disease, and is very crippling, involving tremendous deformity of many joints. In this particular form of arthritis the whole body resistance is lowered, there is loss of weight and strength; extreme pain is present much of the time, due to inflammation and joint changes. The skin, muscles and bones are atrophied and tend to waste. It usually attacks smaller joints; eventually causing them to become stiffened or ankylosed.

The hypertrophic arthritis occurs in people of heavy type being more common in men than women. It is rarely seen in people under forty years of age. This form of disease attacks larger joints as knee, hip, spine etc., which are characterised by swelling, muscle atrophy, effusion may be present and the roentgenogram usually shows some tipping of the articular margins. The articular margin (space) is irregular with hyperostosis.

Causes. The cause of atrophic arthritis is not definitely known. It occurs in the slender type of individual, who may become fatigued to the point of exhaustion, over-work, nervous strain, faulty diet, improper living habits which are all considered important factors in the cause of this type of arthritis.

Hypertrophic arthritis is thought to be caused by chronic strain of a joint, due to heavy lifting and continual poor posture while standing or sitting.

Symptoms. Fatigue which may be both mental and physical limits the patient's activities and interests. This type of patient assumes a position requiring the least effort, thus developing a poor posture which leads to bad body mechanics. Because of the bad body mechanics, his bodily functions are slowed down and lowered resistance eventually develops involving digestive disturbances. When he tries to assume a good posture it will be very difficult requiring more energy and the result will be a strain. There is a lack of muscle tone of the intestines resulting in atonic constipation which may lead to the absorption of toxins into the blood stream. Thus acid content of the blood is increased and he develops poor appetite. The amount of oxygen taken into the lungs is lessened and he becomes an abdominal breather.

The extremities are cold due to ptosis of the abdominal organs causing constipation and slowing down of the general circulation. The glands of internal secretion are inhibited in their actions. There is extreme pain, swelling and soreness involving a limitation of joint movements. There is thickening of the synovial membrane followed by an increase of synovial fluid due to the inflammation, and contraction of the joint occurs as a result of bending the extremity for the relief of discomfort. As the disease progresses the cartilage is destroyed, synovia fills in between the joints, adhesions form followed by complete ankylosis.