

the bird choruses; the beauty of the blending of the earth colors in the plains carpet-spread to outermost horizon far below,--these are only a few of the joys of the hills.

Nurses' Hill Picnic.—We trust that at each Hill-station the nurses will plan for a get-together at as early a date as possible. It would seem advisable to have it as informal as possible. Papers to prepare and read seem like adding burdens. Informal discussions and exchange of ideas are most helpful. Talk things over and let us know what you want at the coming annual Conference; what you want that you are not getting in *the Nursing Journal*; how to get the right type of girls as candidates for nurses' training; follow up some of the discussions that could have gone on profitably for a much longer time at the last Conference, had time permitted. There are representatives of the profession in each hill group from every corner of India, Arabia, Ceylon, Burma, etc. It would be interesting to make inquiries from each such group as to the incidence of Osteo-malacia in each nurse's locality. This information, recorded and pooled through the columns of the Journal, would be enlightening and would be one means of learning something concerning the disease with regard to geographical distribution.

THE CARE OF THE DIABETIC

As Carried Out at the New England Deaconess Hospital

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From "*The American Journal of Nursing*"

DIABETES MELLITUS is a disease in which the normal utilization of carbohydrate is impaired owing to a deficiency in the secretion from certain cells in the pancreas, the "islands of Langerhans." These groups of cells manufacture insulin which is discharged into the blood. Insulin, as we use it, is this secretion which has been isolated from the pancreas of animals. It supplements the secretion from the pancreatic cells, thus enabling the patient to use more carbohydrate. At the same time it gives his over-worked pancreas a rest.

Outline of Treatment

Restriction of diet, especially the carbohydrate, is still necessary. One unit of insulin probably allows the patient to use one to two grams of additional carbohydrate. If too much carbohydrate is given in the diet, in proportion to the dose of insulin, the sugar not taken care of by the body is secreted in the urine. On the other hand, if too much insulin is given in proportion to the diet, the blood sugar falls below the normal of 0.1 per ce. When the blood sugar drops to 0.06, an insulin reaction

or hypoglycemic shock ensues. The protein and fat in the diet must also be taken into consideration, for in severe cases of diabetes 58 per cent. of the protein changes to sugar and 10 per cent. of the fat may change to sugar. An excess of fat in the diet which is not metabolized is the cause of diabetic coma.

Etiology

The predisposing factors in diabetes are said to be :

1. Excessive use of carbohydrate foods in the diet.
2. Obesity.
3. Heredity.
4. Race (more common in Jews than in Gentiles).
5. Sex (more common in women than in men, especially after the age of forty).

The general symptoms are frequent micturition, increased thirst, loss of weight, general pruritus, which may be very persistent, and general malaise.

Hospital Management

Treatment, consisting of diet, insulin, exercise, and general hygiene, is so largely a matter of teaching that at the New England Deaconess Hospital classes are held bi-weekly where every patient or some member of his family is taught diabetic care. The classes are taught by the supervisor in charge of the diabetic floor. These are held in the classroom where there is ample blackboard space for the teaching of diet. There is a large food chart. Artificial foods are used in the illustrations of typical diets.

These artificial foods are most realistic in appearance and have been found to be a definite, financial asset to the hospital. Patients are also taught to test urine for sugar and the method of administering insulin. These classes are supplementary to classes presided over by Dr. Joslin or his assistants. The classes are quite informal, and the interest manifested by the individual patients is evidenced by their numerous questions.

Routine of Admitting Diabetic Patients

Every diabetic patient admitted to the hospital has his urine tested for sugar and diabetic acid by the student nurses on the floor, and a specimen is sent to the laboratory for complete analysis. Benedict's test is used. Place 5 c.c. (an ordinary teaspoon holds about 5 c.c.) of Benedict's solution in a clean test tube, add 8 drops, not more, of urine to be examined, shake the tube to mix the urine and the solution, then place in boiling water and allow to boil 5 minutes. If the solution remains clear, the urine is sugar-free: if one can read print through the solution showing a green shade, the percentage of sugar is so slight it can be disregarded: if a heavy greenish precipitate forms, it usually means there is a trace or more; the appearance of a yellow sediment means the presence of approximately 1.0 per cent sugar in the urine and an orange or red sediment means 2.0 per cent or more.

Administration of Insulin

The administration is assigned to a student nurse for a period of two weeks. The number of patients to whom it is given daily averages thirty. Every diabetic should know how to give himself insulin, for even if he does not require it while in the hospital, he may need the knowledge at some future time.

Method of Preparation

Sterilization.—Wash the hands well with soap and water. Wrap the cylinder and the piston of the syringe separately in pieces of cotton cloth or gauze, cover them and the wired needle (a 25-gauge and 7/8-of-an-inch-long one we find the most satisfactory) with cold water, heat to boiling and boil for three minutes. Pour off the water, being careful not to touch anything in the dish, and allow to cool.

Loading.—Take the piston and insert it into the barrel, being careful not to touch the surface of the piston, which enters the barrel, and thus contaminate it. Draw out the piston so that the syringe contains a little more air than the amount of insulin needed. Wipe off the top of the insulin bottle with medicated alcohol. Push the needle through the rubber cap until the point is first seen, invert the bottle, force the air from the syringe into the bottle and then withdraw as much insulin as is desired. By holding the syringe and needle point upward any air is easily expelled from the syringe before withdrawing it from the bottle.

Measuring.—The syringe used is a 1 c.c. Luer, marked off into tenths. The dose is measured in units. Insulin comes in different strengths U 10, U 20, U 40, etc. The U 10 means that there are 10 units in 1 c.c. of solution, or 1 unit to each space on the scale, so that for the patient taking 5 units one would measure up to $2\frac{1}{2}$ spaces on the syringe. The same way with U 40. There are 40 units to the c.c., or 4 units to each space: 5 units would thus measure $1\frac{1}{4}$ spaces.

Injecting.—The best places are those where the skin is loose, preferably the arms and thighs. It is very necessary to change the place of injection with every dose for one month. A good plan is to visualize four straight lines 1 to $1\frac{1}{2}$ inches apart, and begin with the left outer side of the thigh on Monday, the right on Tuesday, the left arm on Wednesday, the right arm on Thursday, the left thigh on Friday (a little farther down) and so on, going down and moving in, each day. This prevents atrophy of the muscle and leaves no hard spots, and the patient absorbs the full value of the insulin. Having decided on the spot for the injection, wipe it off with a pledget of sterile cotton dipped in alcohol. Pinch up a fold of the skin between the thumb and forefinger and, with the syringe held parallel to the skin at an angle of 45 degrees, push the needle quickly into the fold, almost to the butt. Force the insulin out of the syringe while withdrawing the needle so

that all the insulin is not left in the same spot. Withdraw the needle quickly and rub the spot with clean cotton until the insulin has been absorbed.

Diabetic Coma.—The prevention of coma is taught in the class, and the following written instructions of Dr. Joslin are given to each patient:

A. Never omit insulin unless the urine is sugar-free.

B. If you feel sick, especially if you have *fever, nausea and vomiting* or severe pains in the abdomen:

1. Go to bed.
2. Call a doctor.
3. Take a cup of tea, coffee, cocoa shells or broth every hour. Omit at least one-half your diet, and instead take orange juice or oatmeal gruel. If the urine contains sugar, take insulin every hour under your doctor's direction.
4. Get someone, a relative, a friend or nurse, to devote her entire time to you until you are well.
5. Move the bowels with an enema.

C. Boil a quart of water to have for your physician in case he thinks it necessary to give salt solution under the skin.

When it is learned that a patient in diabetic coma is on the way to the hospital, a warm bed is made ready with two bath blankets (extra woollen ones at hand), and at least four hot water bottles. A catheter tray, an enema tray, a gastric lavage tray, a subpectoral tray, and an insulin tray are all ready at the bedside for instant use, if required. The promptness with which the nurse carries out the treatments and orders may mean the saving of the patient's life.

Insulin Shock.—The signs and treatment of an insulin shock are also both taught to the patient in class and given to him in writing.

The following symptoms may occur from one to eight hours after taking insulin, and are due to:

1. Too much insulin.
2. Too long a period between insulin and food.
3. Food given has been unabsorbed because of indigestion, vomiting or diarrhoea.
4. Unusual exercise.

Symptoms:

1. Trembling, weakness.
2. Pallor, faintness (take the juice of an orange or a lump of sugar or, with little children, give injection of Karo syrup or glucosel).
3. Headache, double vision, nervousness.
4. Sweating.
5. Unconsciousness. If necessary, give 0.5 c.c. adrenalin chloride, 1:1000 solution, hypodermically, and repeat in 15 minutes. With return to consciousness, as soon as possible give the juice of an orange by mouth. Ten per cent glucose solution may be given by rectum, under the skin, or intravenously if a doctor so directs.

A glucose box ready for an emergency is kept in a definite place in the ward. It contains a bottle of iodine, a bottle of alcohol, a tourniquet,

a jar of sterile gauze, a sterile 20 c. c. syringe and wired needle, 2 ampules of glucose, a sterile 2 c. c. syringe and wired needle, 6 ampules of adrenalin chloride.

Care of the Teeth.—Because of the fact that diabetic patients are so extremely susceptible to infection, special attention is paid to their teeth. This is carried out by the dental hygienist on duty at the hospital who examines thoroughly the teeth of every diabetic patient and suggests the necessary tooth treatment.

Vitally important is the care of the skin and feet. Dr. Joslin says that these patients should keep their feet as clean as their faces! Due to impaired circulation, the slightest abrasion of the skin, if not properly cared for may lead to gangrene.

Care of the Feet.—A foot room in charge of a graduate nurse, with two full-time student nurse assistant, is maintained in connection with the diabetic floor. Here, every diabetic patient has demonstrated to him the care of his feet. A staff chiropodist spends two mornings each week in the removal of corns, callosities, etc. Written instructions are again given to the patient.

Hygiene of the Feet:

1. Wash feet daily with soap and water. Dry thoroughly, especially between toes, using pressure rather than vigorous rubbing.
2. When thoroughly dry, rub well with hydrous lanolin as often as necessary to keep skin soft, supple, and free from scales and dryness; but never render the feet tender.
3. If the feet become too soft, rub once a day with alcohol.
4. If nails are brittle and dry, soften by soaking in warm water, one-half hour each night; apply lanolin generously under and about nails and bandage loosely. Clean nails with orange wood sticks. Cut the nails only in a good light and after a bath, when the feet are very clean. Cut the nails straight across to avoid injury to the toes. If you go to a chiropodist, tell him you have diabetes.
5. Wear shoes of soft leather which fit and are not tight (neither narrow nor short). Wear new shoes one-half hour, only, on the first day, and increase one hour daily.

Treatment of Corns and Callosities:

1. Wear shoes which fit and cause no pressure.
2. Soak foot in warm, not hot, soapy water. Rub off with gauze, or file off dead skin on or about callus or corn. Do not tear it off. A corn may be painted with the following mixture: salicylic acid, 1 drachm; collodion, 1 ounce. Repeat for four nights; then, after soaking in warm water, the corn will come off easily. If it does not come off easily without bleeding, repeat the treatment for four nights.
3. Do not cut corns or callosities.
4. Prevent calluses under ball of foot:
 - (a) By exercises such as curling and stretching toes twenty times a day.
 - (b) By finishing each step on the toes and not on the ball of the foot.

Aids in Treatment of Imperfect Circulation in Cold Feet:

1. Exercises. Bend the foot down and up as far as it will go six times. Describe a circle to the left with the foot six times, and then to right. Repeat morning, noon, and night.
2. Massage with lanolin or cocoa butter.
3. Do not wear circular garters. Do not sit with knees crossed.

Treatment of Abrasions of the Skin:

1. Proper first-aid treatment is of the utmost importance even in apparently minor injuries. Consult your physician immediately.
2. Avoid strong irritating antiseptics, such as sulpho-naphthol and iodine.
3. As soon as possible after injury, certain surgeons recommend the application of sterile gauze saturated with medicated alcohol or hexylresorcinol (S. T. 37). Keep wet for one hour by pouring on more alcohol of S.T. 37. Sterile gauze in sealed packets may be purchased at drug stores.
4. Elevate, and as much as possible until recovery, avoid using the foot.
5. Consult your doctor for any redness, pain, swelling, or other evidence of inflammation.

To ensure correct shoes for each individual diabetic patient, a model is taken and the purchase of these is made through the hospital. This is of particular value to patients who have been subjected to foot surgery.

Important Factors in the Nursing Care of Diabetic Patients.**Diabetic trays:**

1. Food to be weighed and measured accurately.
2. It should be appetizing and properly seasoned.
3. It should be varied and of sufficient bulk to be satisfying.
4. Impress upon the patient that he should eat the prescribed amount of food at each meal.
5. If diarrhoea occurs, report it—as a more concentrated diet may correct this symptom.

Contrary to a common custom in many hospitals, the calculation and planning of the diabetic diets is not done in the dietary department, but is in charge of an assistant head nurse with a student nurse assistant. This assistant head nurse makes the routine morning visit with the doctors. The actual preparation of the trays is done by three full-time student nurses.

Care of Bed Patients.

Pay especial care to the skin of bed patients; it must be kept clean and dry. A daily bath is given each patient. We have found that air mattresses add considerably to the comfort of patients who have had leg amputations and therefore are unable to move freely. They permit a freer circulation of air and so tend to prevent furunculosis of the back. In these cases the ordinary bed rubber is removed from the bed and a large cellulocotton pad is substituted, to protect the bed and absorb moisture. These may be changed, as necessary, without too much discomfort to the patient. These patients also appreciate the use of the Balkan frame which is prescribed as a routine, following amputation.

Patients who appear to be susceptible to lesions of the skin are given Alpine lamp treatments daily. This portable lamp is also used in the treatment of many of the surgical incisions in order to hasten healing.

Bed patients are provided with white woollen socks ; these keep the feet warm and prevent injury to the skin. Hair pillows under the ankle and bed cradles are also used to prevent pressure.

Morale.—Keep the patient happy and optimistic.

A physiotherapist visits the floor daily and teaches the necessary exercises to bed patients for whom they have been ordered.

A store is maintained at the hospital where diabetic patients may purchase their particular supplies at practically cost prices.

We are fortunate in having a graduate "Wandering Diabetic Nurse." This position has been created to fill a long-felt need in the follow-up care of diabetic children who have been patients in the hospital and whose people are unable to pay for the services of a graduate nurse in the home.

Appointments wanted for two graduate nurses. Nursing Superintendent, Good Samaritan Hospital, Jhelum.

Nilgiris T.N.A.I. Conference.

There will be a Picnic for the T.N.A.I. members at Longwood Shola, Kotagiri, on Monday, May 11th. Meet at Club Corner, Kotagiri; 10 a.m. Those coming are requested to bring a picnic breakfast. Tea will be served in the pavilion of the Kotagiri Missionary Union at Re. 1 per head.

Special buses will, if necessary, be arranged from Ootacamund and Coonoor. Members wishing to come should acquaint Mrs. Watts, Shamrock Cottage, Kotagiri, before May 6th, if possible.

U. P. District.

Miss A. W. Quinn, District Secretary, will be on leave from May to September. Mrs. P. Carman, Thomason Hospital, Agra, is acting as District Secretary.

T. N. A. I. Handbook.

"The New Handbook of the T. N. A. I. meets a great need. It is full of useful information and is most interesting. How it can be printed at such a small cost is marvellous. Every trained nurse in India, Burma and Ceylon should have a copy on her bookshelf."

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