

Quebec Beer-Drinkers' Cardiomyopathy: Dietary Assessment of Patients

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DIETARY surveys carried out in different parts of the world have shown that the diets of poor people are deficient in proteins, vitamins and minerals.^{1,2} Mayer³ has surveyed the eating habits of American Negroes and compared them with poor white Americans. A detailed survey of the food intake of English families before and after the war has been reported with the observation that the intake of essential nutrients has since increased.⁴ The importance of food intake in connection with different heart diseases has been noted by various workers.⁵

In Quebec, during the last year, a number of people developed an acute cardiomyopathy. All of them drank large quantities of beer. The intake of dietary essentials therefore assumes some importance. In the following study, observations on the dietary habits of some patients suffering from cardiomyopathy are reported.

METHOD

Fifteen patients recovering from an attack of cardiomyopathy were interviewed by the authors, together and independently, from October 1966 to December 1966. The patients generally took their food three times a day. Breakfast usually consisted of bread, butter, egg, tea or coffee. Between breakfast and lunch a small amount of food, such as potato chips, chocolates or soft drinks, was taken. During lunch, sandwiches containing egg, chicken or other meat were eaten, supplemented most of the time by carrots, peas or potatoes and frequently by salad. On Fridays, fish was taken instead of meat. Dinner was similar to lunch, except that more food was consumed. Steaks or chops were eaten at least three times a week. Bread, butter and coffee were also included in the diet. Between lunch and dinner, coffee was drunk and after dinner, small snacks were consumed.

Beer was consumed throughout the day and patients continued to increase the quantity gradually. They lost their appetite during the period ranging from three to six months before

the diagnosis of cardiomyopathy and became nauseated in the weeks preceding admission to hospital.

RESULTS

Only an estimate of the different foods consumed could be made. The average amounts of the various foods eaten daily by the patients are given in Table I. The nutrient content of the

TABLE I.—DIFFERENT FOODSTUFFS CONSUMED BY THE PATIENTS

	<i>Per day</i>
Wheat products.....	210 g.
Meat products.....	115 g.
Salad, green vegetables.....	50 g.
Carrots, peas and potatoes.....	105 g.
Butter.....	15 g.
Fruits.....	8 g.
Milk.....	28 ml.
Soft drinks.....	120 ml.

diet was calculated with the help of food composition tables⁶ (Table II). For comparison the

TABLE II.—AVERAGE NUTRIENT CONTENT OF THE DIET: 15 PATIENTS

	<i>Cardiomyopathy patients' daily intake</i>	<i>Recommended allowances of daily intake⁷</i>
Proteins		
Total.....	45.5 g.	70.0 g.
Animal.....	25.5 g.	—
Vegetable.....	20.0 g.	—
Fat.....	48.5 g.	—
Carbohydrates.....	280.5 g.	—
Calcium.....	0.273 g.	0.800 g.
Phosphorus.....	0.900 g.	—
Thiamine.....	1.2 mg.	1.5 mg.
Iron.....	8.8 mg.	10.0 mg.
Riboflavin.....	0.8 mg.	1.8 mg.
Niacin.....	19.9 mg.	21.0 mg.
Vitamin A.....	6250 I.U.	5000 I.U.
Energy value provided by the diet, kcal.....	1713	3200

dietary allowances recommended by National Research Council, National Academy of Sciences, U.S.A., are included.⁷ Table III shows the approximate analysis of beer as reported in the literature, and also the amount of dietary nutrients in the beer consumed by the patients.

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TABLE III.—COMPOSITION OF BEER

		intake/day (a)
Water g. %.....	90.0	—
Proteins g. %.....	0.6	32.72
Carbohydrates g. %.....	4.4	240.01
Minerals g. %.....	0.2	10.91
Calcium mg. %.....	4.0	218.18
Phosphorus mg. %.....	26.0	1418.00
Alcohol g. %.....	4.0	218.18
Thiamine µg./l.	40.0	218.19
Riboflavin µg./l.	280.0	1854.38
Pyridoxine µg./l.	470.0	2568.70
Nicotinic acid µg./l.	8800.0	48001.80
Pantothenic acid µg./l.	790.0	4309.30
Biotin µg./l.	5.3	20.9
Energy provided by the constituents other than alcohol kcal.		1490
Energy provided by the alcohol kcal....		1527

(a) Total average intake 24 bottles.

DISCUSSION

It can be observed from Table II that the daily dietary protein intake of the cardiac patients was 45.5 g. When proteins provided by beer were considered, the total protein intake (78.2 g.) appeared normal when compared to 70.0 g. of recommended protein allowance. The animal proteins and vegetable proteins in the diet appeared to be equal. The total dietary calories (1713) are considerably lower than the recommended value (3200), but when the calories provided by beer constituents other than alcohol are added (1490), the total exceeds the recommended amount. The total calcium supplied by the diet and the beer was less than the recommended value. Thiamine content of the diet was 1.2 mg. while that provided by beer was 0.24 mg.

Recognizing the limitations of the interview method, it appears that except for calcium most of the nutrients were taken in required amounts.⁸ Total thiamine intake was slightly less than the recommended allowances. Quantitative estimation of protein intake by itself may be misleading as the amino-acid pattern may vary widely. The proportion of carbohydrates and fat present in the diet would also influence the protein utilization.⁹ The percentage of protein in the nutrient intake was 11.7% while carbohydrates made up 80.8%. Thirty to forty per cent of total protein

was derived from animal sources, which is low and suggests an imbalance in essential amino-acid intake. Thomson¹⁰ suggested that inadequate dietary protein either quantitatively or qualitatively may be an etiological factor in cardiomyopathy.

Summary Fifteen patients suffering from cardiomyopathy were interviewed. All of them were drinking large quantities of beer. The diet of the patients consisted of wheat products, meat products, leafy vegetables, carrots, peas, potatoes, milk and soft drinks. The different nutrients provided by the diet were estimated. The total nutrient consumption of the patients compared satisfactorily with the dietary recommendations of the National Research Council, National Academy of Sciences, United States.

Résumé Quinze patients présentant des cardiomyopathies ont été interrogés. Tous étaient de gros buveurs de bière. Leur nourriture consistait en produits de froment, de viande, de légumes verts, carottes, pois, pommes de terre, lait et boissons non alcoolisées. Les différents aliments de leur régime ont été évalués. L'alimentation totale des patients répondait aux normes nutritives recommandées par le National Research Council et le National Academy of Sciences des Etats-Unis.

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