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DIABETES IN CHINA.

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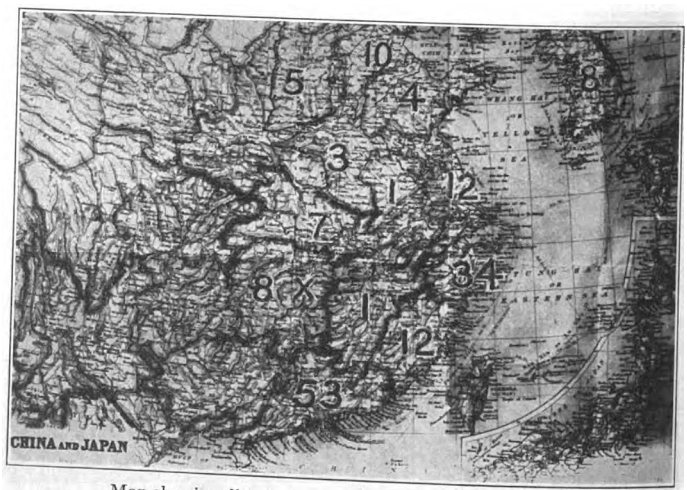
It has long been accepted that diabetes mellitus does not occur in the tropics and the Orient, or at least that its occurrence there is infrequent. Not much definite information is available on this point. That the situation, however, is either changing or better understood is indicated by an item in the India correspondence of the *British Medical Journal*, October 3, 1914 (p. 604), to the effect that the Madras Government, being impressed by the serious frequency of diabetes among the educated classes of that presidency, has appointed an investigator who is to give three years' study to the problems of causation and prevention. In regard to China, opinion is vague as to the prevalence of diabetes and the reasons for it.

To secure the data here presented, a questionnaire was sent to 150 representative western physicians scattered as evenly as possible through the eighteen provinces of China and Korea. Sixty-three replies were received, of which 28 reported no cases obsérved in periods of from eighteen months to thirty years' medical experience in China. Of the remaining 35 a number of case reports were so inexact and the diagnosis so lacking in adequate support as to preclude their consideration. Apparently reliable reports were obtained of 206 cases of diabetes mellitus,[1] of which the great

[1] Since preparing the above report, one case of diabetes mellitus has been treated in the Yale Hospital, making the total list 207 cases. This case died after two days in coma.

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majority had been observed within the last five years. There were distributed by provinces as follows: Kwantung 53, Chekiang 34, Kiangsu 12, Fukien 12, Chihli 10, Hunan 8, Korea 8, Hupei 7, Formosa 6, Shansi 5, Shantung 4, Honan 3, Anhwei and Kiangsi 1 each; 42 not stated. Thus positive reports are in hand from 12 of the 18 provinces of China proper, as also from Korea and Formosa. The 28 negative reports were distributed by provinces as follows: 3 each from Korea, Chihli, Hupei, Hunan, Anhwei, and Manchuria: 2 each from Kwantung, Kiangsu and Szechuen: 1 from Honan and 3 not stated. No reports were received from Kwangsi, Yunnan, Kweichow, Shensi, and Kansu. There was a great diversity of opinion as to the relative incidence within China, observers in north or central China believing the disease more prevalent in southern and eastern districts, and *vice versa*.



Map showing distribution of diabetic cases by provinces.

Of the 164 cases which can be placed geographically, the largest number are in the coast provinces of Kwantung, Fukien, Chekiang and Kiangsu. These figures may not indicate a greater incidence in this area, but exact comparisons are nearly impossible to give. Various more or less indeterminate factors must be considered, such as the average temperament, social status and predisposition of the patients, the presence or absence of routine urine examinations, and the care and skill of the doctor in eliminating non-diabetic glycosuria. Until more exhaustive data are available, covering the entire 18 provinces, the question of relative incidence must be left in abeyance. Speculation from insufficient data is futile.

In none of the reported cases was definite hereditary predisposition noted. Of 136 cases where the sex was stated, 118 were in

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males and 18 in females. This is not significant, as the great majority of all patients are males. So, too, with the age. Exactly two-thirds were between thirty and fifty years of age, but the majority of patients coming to hospitals and clinics are probably between these limits.

Age.	Cases.	Per cent.
Under 20	4	2.9
21 to 30	32	23.2
31 to 40	45	32.6
41 to 50	47	34.0
51 to 60	6	4.4
Over 61	4	2.9
	138	

Of 86 cases in which the occupation was stated, 48, or 55 per cent. were shopkeepers, tradesmen, or otherwise engaged in business; 20, or 23 per cent., were farmers. There were 8 housewives, 2 clerks, 1 tanner, 1 teacher, 1 coolie, 1 peddler, 1 soldier, and 3 men of means without occupation. In 26 cases the complaints for which medical relief was sought were noted as follows: 10 emaciation, 9 debility, 15 excessive thirst, 12 polyuria, 12 headache, 2 loss of weight, 4 pruritus, 3 peripheral nervous symptoms, 1 furunculosis, and 1 chronic cough. Closer examination of 64 cases showed a large percentage to be suffering from cataract and multiple abscesses. Dyspepsia, dysentery, and carbuncle were noted in three cases each, and pyemia, erysipelas, bronchopneumonia, and cryptogenic splenomegaly were found in one each. It is to be regretted that fuller information could not be elicited under these headings. It appears that patients presenting themselves with emaciation, polyuria, thirst, or headache, alone or in combination, especially if they have also multiple abscesses or cataract, and if no evident cause is found, should be examined for diabetes.

In 188 cases the predominant article of diet was named. In 130 rice was the staple and in 57 wheat, some of the latter adding millet, corn, beans, and sweet potatoes. Thus for the great majority, rice formed the main article of diet. It is out of the scope of this paper to do more than present the data collected. Fuller discussion is postponed to a later date.

Of 43 physicians who answered the question of relative prevalence, one considered diabetes more prevalent than in the west, 7 of equal frequency, and 35 considered it much less frequent. Among the reasons given for decreased frequency were the assumed fact that the Chinese as a race are hardier than western peoples, and that they resist nervous shocks better and have fewer of them. Little excitement and simple diet are adduced. One physician lays the decreased prevalence to the fact that the plain diet of rice and well-cooked vegetables with practically no sugars, is digested and absorbed so slowly as to prevent hyperglycemia. The

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same correspondent continued that "the temperance habit (of the Chinese) in food and drink does not disturb the carbohydrate metabolism." It is at least an open question as to whether the Chinese as a race are as temperate in food and drink as this writer assumes. Fast eating without proper mastication, and periods of hunger terminated by most liberal and prodigious stuffing, together with a fairly constant consumption of alcohol, though rarely to the point of intoxication, are more characteristic of the race than is ordinarily supposed. It is more than possible that these factors may have a definite influence on the prevalence of arteriosclerosis and cardiac lesions, even in the first two decades of life. It is worth considering that the excessive lack of sugars in the average Chinese dietary, even in the presence of a maximum starch fraction, may well determine an increased tolerance for carbohydrates.

It is pointed out in a number of reports that diabetes in the Chinese is more prevalent in the better classes. This is probably true, and is confirmed by the distribution of the small series here reported, when it is remembered that the great bulk of the patients seen are from the lower classes. Dr. Lambert, of Kiukiang, whose observation and experience lend weight to his word, says: "I believe it has not until recently been a disease from which the Chinese have suffered much, but of late years, with the increased desire for foreign medical treatment evinced by Chinese of all classes, diabetes mellitus has been found to occur to quite an appreciable extent among the better classes." Lambert reported two cases of diabetes in the *British Medical Journal*, January 4, 1908, which were observed in Formosa. He also noted three cases of glycosuria in a series of 200 insurance examinations and one case of diabetes in 24,000 out-patients in Nanking, all drawn from the lower classes of society. He says, with reason: "Perhaps the idea that diabetes was an unknown disease among the Chinese arose from the fact that until comparatively recently foreign medical treatment was better appreciated by the coolie class than by the wealthier and more conservative merchants and officials, and because examination of wealthy natives for insurance was not so common in China ten years ago as it is today."

Dr. J. L. Maxwell, who found but two cases in 12,000 in-patients under accurate observation, concludes that he has no idea of the reason for decreased prevalence unless it be the absence of the bustle of the West. Even that he doubts, as he finds hysteria fairly common and both functional and organic nervous diseases not rare. Our experience at Changsha entirely confirms this statement. Dr. Maxwell, together with many, suggests the possible influence of racial tendencies and characteristics. It is useless at present to turn aside into this field, however attractive it appear, because it is as yet a field of speculation only. The peculiar racial psychology of the Chinese, based on controlled experimental data, is yet to be written.

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Dr. Peill, of Tsangchow, Chihli, proposes the interesting thesis that "the only reason that occurs to me (for a prevalence less than in England) is the opposite of an unknown, *i. e.*, the opposite of that which makes it frequent among the Jews." Dr. J. P. Maxwell, who reports 11 cases from Yungchun, Fukien, considers diabetes more frequent than supposed. Dr. Park, from Soochow, Kiangsu, reports 8 cases in five years out of 3000 to 5000 persons seen annually. His practice is restricted to first-class patients. He says: "I used to think it infrequent, but the longer I stay in China the less am I inclined to make positive statements." This perhaps illustrates the probability already noted, that the rarity of diabetes in earlier and in many present reports may be in part explained by the fact that the great majority of patients coming to western hospitals are of the lower classes, where this disease is less apt to occur in any race.

Dr. Van Buskirk says that the disease is known to the Koreans, who call it the "sweet urine disease." He considers it rare, however. Another physician of thirty years' practice in Seoul had seen no case. Dr. Lewis, of Chenchow, Hunan, makes a comment which must always be borne in mind in a consideration of the prevalence of diabetes in China. He believes that the etiological factors ordinarily designated might be found as striking in China as in any prevalent district. Nevertheless, he considers diabetes very infrequent in south Hunan.

In regard to treatment, the prevailing opinion is that dietetic control with sufficient elimination of carbohydrates, brings the same results as in the West, but that dietetic control is usually impossible where rice forms the chief article of diet. Several favorable reports were received on the good results from substituting native oatmeal for rice. One diabetic dietary consisted of bran, meat, and goat's milk. One report described a case in a giant beggar, seven feet in height, who died in hospital. He was feeble-minded, and made his living by exhibiting his ability to eat five catties or seven pounds of bread at one sitting.

In view of the opinions at hand, representing the observation and experience of a large body of competent observers, the following conclusions seem justified:

1. In the predominant class of persons under medical observation in China, diabetes mellitus is less common than in the west.
2. It will, however, be found increasingly prevalent in China, as observation is extended more widely to the better classes of society.
3. The course of the disease and its response to treatment are parallel to similar conditions in the west.
4. No evidence is at hand indicating etiological factors different from those in the west. Theories accounting for a decreased prevalence may conceivably be refuted by widespread introduction of closer clinical examination.

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