Diabetes:

Summary of the Preliminary Report on the Epidemiological Survey

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As an introduction to a proposed short series of articles on various interrelated topics on diabetes mellitus, I am starting with a section of the preliminary report of the International Monitoring Committee about the the National Diabetes Programme in Malta. This concerns a short summary on the epidemiological survey, recently performed, which confirms that diabetes mellitus is a major public health problem in Malta.

General

The information available from past years suggest that diabetes mellitus is a major health problem in Malta. However, there has been no comprehensive effort made so far to assess the magnitude and nature of diabetes in this country with about 300,000 inhabitants. The aim of the present study was, therefore, prior to launching a national diabetes control programme, to provide relevant information in the adult population (15 years and above) of Malta, for Maltese health authorities on:-

(I) Prevalence of diabetes mellitus and impaired glucose tolerance (IGT);
(II) Characteristics of diabetes mellitus and IGT, including genetic, anthropometric and some biochemical variables:
(III) Complications related to diabetes mellitus and IGT;
(IV) Levels of other cardiovascular disease risk factors, in addition to diabetes, e.g. blood pressure, serum cholesterol, smoking.

Study Subjects and Methods

The Survey was conducted in January-July 1981 by the Department of Health in collaboration with Governments of Yugoslavia and Belgium and W.H.O. The survey population was a random sample of the people living in Malta and Gozo over the age of 15. Altogether 2,149 persons were examined, 955 males and 1,914 females. The participation rate was 73%.

Internationally accepted methods were followed throughout the survey, which was a combination of an interview - using a standard questionnaire - and a clinical examination. A 2-hour load with 75g of glucose was used for determination of diabetes mellitus, except in some cases with insulin therapy or fasting blood glucose of 200mg/dl or more.

All diabetics and persons with IGT were invited to an in depth study on complications related to diabetes. Other factors possibly associated with the complications were taken into account. For cases (diabetics and IGT persons) referents were selected from the non-diabetic responders of the survey, one referent per one case. Attempts were made to match referents for age and sex but this was not achieved due to a variable response rate.

A nutrition study was carried out concurrently on the sample population.

Results

According to the WHO criteria, the prevalence of diabetes mellitus was 7.7% prevalence of IGT 5.6% and the proportion of non-diabetic persons was thus 86.7%. Out of the 165 diabetics, 127 were previously known cases. The prevalence rate of IGT was 5.9% in men and 5.4% in women. According to age, the IGT prevalence was higher in women under 55 years of age than in men. The prevalence rate of diabetes mellitus was 6.1% in men and 9.0% in women. According to age, the prevalence rate was higher among men under 45 of age than in women. Both IGT and diabetes prevalence rate increased with increasing age both in men and women, but there was a decline in diabetes prevalence rate after the age of 74 years. Accordingly, the mean blood glucose values - both fasting and 2-hour after loading increased with increasing age until 74 years of age, then levelling off.

High fasting blood glucose values were clearly associated with high body mass index (body weight). However, only a small proportion (11%) of people with definite overweight (BMI 30 Kg/m^2 or more) had fasting blood glucose over 120 mg%.

There was no clear indication that diabetics and IGT persons would have more diabetics among their close relatives than non-diabetic persons.

Systolic and diastolic blood pressure level in both sexes increased with increasing age levelling off after the age of 74. Males had higher mean blood pressure values below the age 40-45, whereafter females had higher blood pressure level than males.

With regard to complications associated with diabetes reference is made to the second phase of the study. Abnormal ECG - findings with ischaemic changes were rather rare: 14 cases (10%) among diabetics, 3 cases (4%) among IGT persons and 9 cases (5%) among non-diabetics. Large vessel disease (abnormal finding related to main arteries) was found among 25% of non diabetics, 22% of IGT persons and among 40% of diabetics. Vascular disease in legs was uncommon, only 7 cases among 400 examined persons were detected.

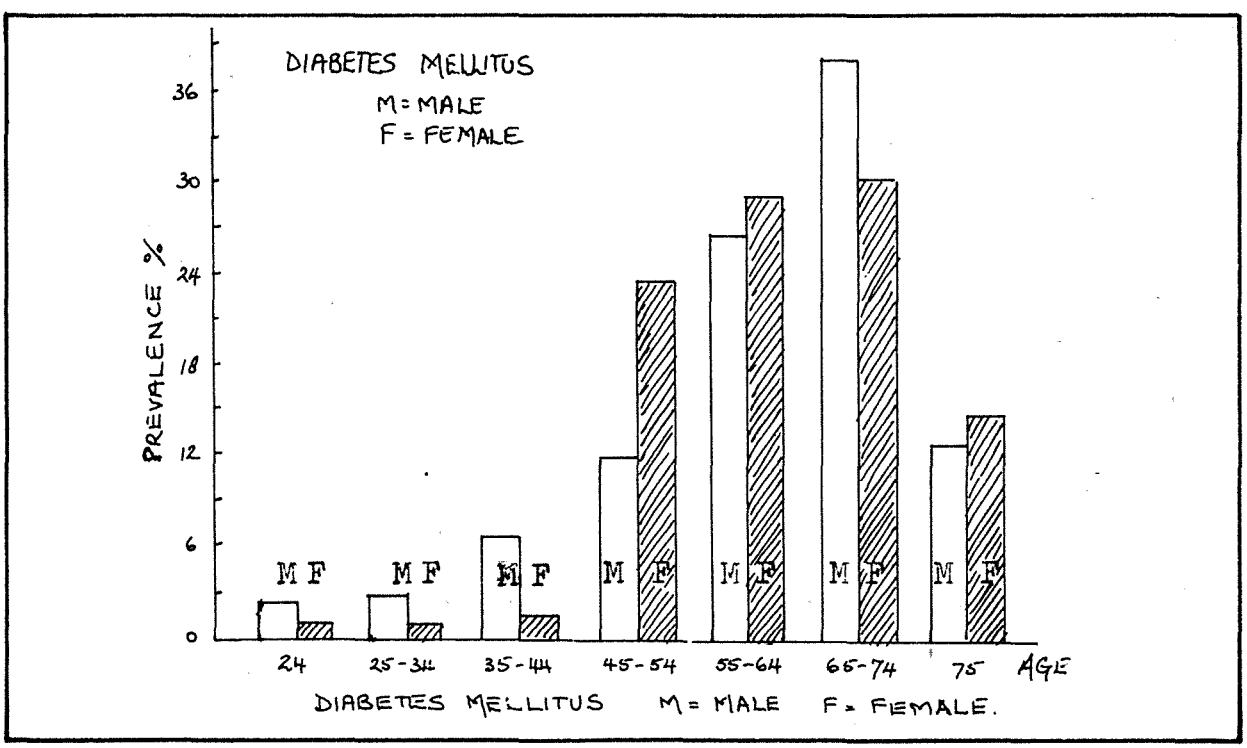
Small vascular disease of the eye (severe or intermediate) was found in 35% of men and in 29% of women with diabetes, but only in 8% of IGT men and in 6% of IGT women, and in 4% and 5% of non-diabetic men and women respectively. Small vascular disease of kidney (severe to minimal) was found in 22% of men and in 20% of women with diabetes, whereas its prevalence in IGT and non-diabetic persons was clearly lower.

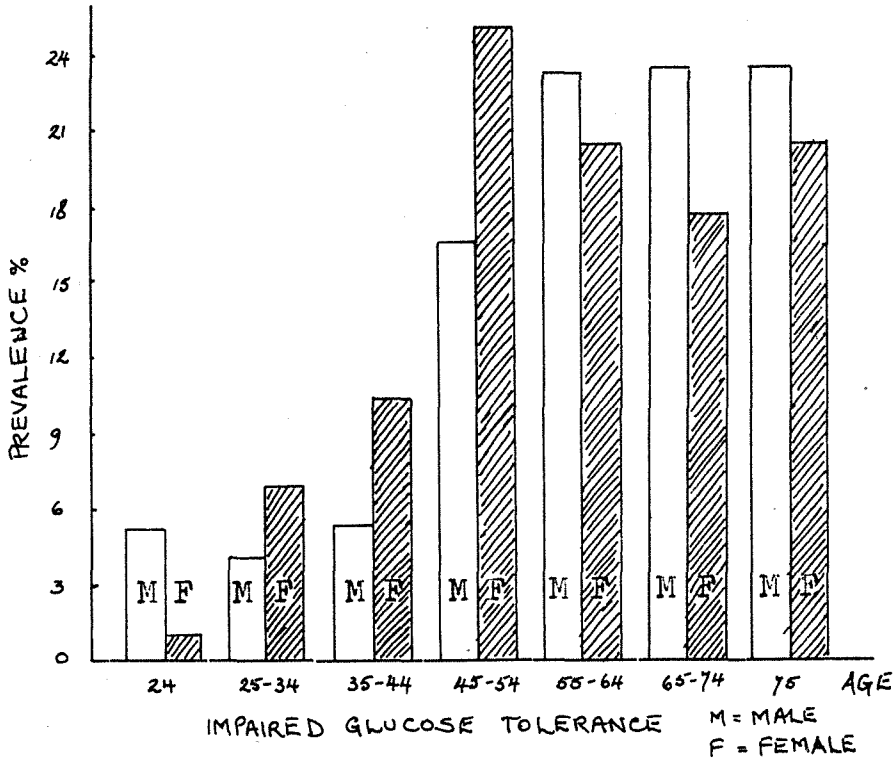
A motor neurological impairment was suspected in 41% of diabetics, in 32% of IGT persons and in 22% of non-diabetics and the prevalence of suspected sensory - motor impairments was 20%, 14% and 8% in these three groups respectively. Both definite and suspected autonomic nervous system impairments were also more common among diabetics:-

definite: 2% in D.M. 1.2% in IGT 1.1% in non-diabetics.
suspected: 63% in D.M. 54% in IGT 44% in non-diabetics

Regarding other risk factors for cardio-vascular diseases, information was obtained from serum cholesterol and smoking. The mean level of serum total cholesterol increased with increasing age up to 54 years of age in men and to 64 years in women. The overall mean value in men was 213mg/dl and in women 241 mg/dl. In all age groups women had higher serum total cholesterol level than men. The mean of serum HDL-cholesterol was 42 mg/dl in men and 51 mg/dl in women and there was only small variation with age. 47% of men were currently smoking, whereas only 9% of women were smokers. There were no major differences in these factor levels between diabetics, IGT persons and non-diabetic persons.

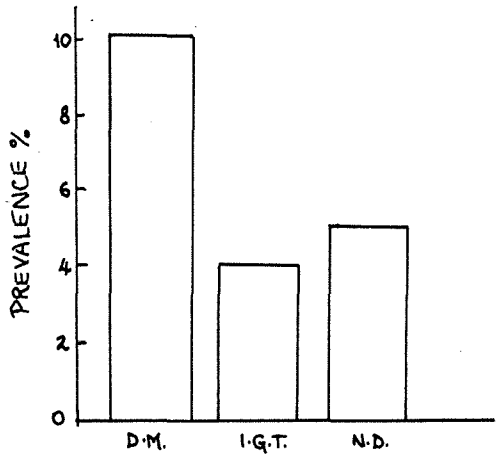
In conclusion, diabetes mellitus is definitely a major public health problem in Malta. Its etiology remains unclear but the results of the present survey suggest a rather strong environmental influence, in addition to possible genetic susceptibility. There was a considerable proportion of diabetic cases who were already previously known and many of them also referred to therapy. Complications related to diabetes were not rare. However, the cross-sectional study design does not allow very firm conclusions on the occurrence of complications, and, therefore, follow-up of the present study population will be extremely valuable. Other cardiovascular disease risk factor levels, e.g. blood pressure and serum cholesterol are not very high, in comparison with other European populations, but smoking among Maltese men is relatively common.



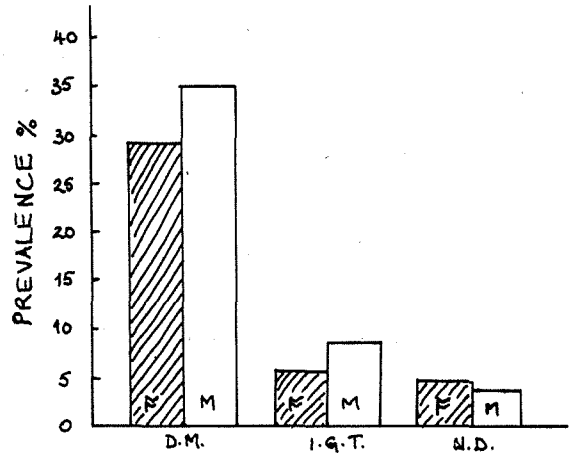


IMPAIRED GLUCOSE TOLERANCE

M = MALE
F = FEMALE

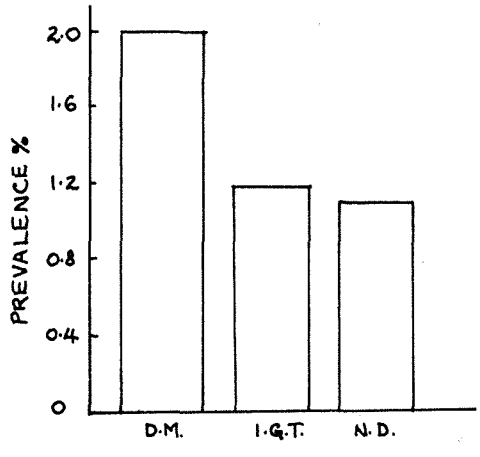


ISCHAEMIC HEART DISEASE

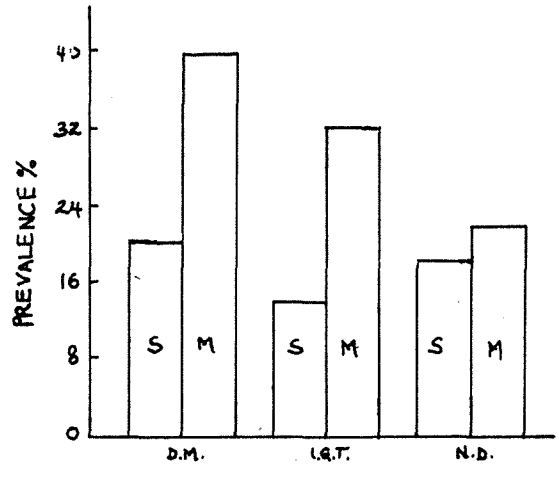


EYE

M = MALE
F = FEMALE



NEUROLOGICAL AUTONOMIC



NEUROLOGICAL

S = SENSORY
M = MOTOR