limits recommended two hours after a 75 g oral glucose tolerance test are <7.7 mmol/l (normal), $7.8-11.0$ (impaired glucose tolerance), and >11.0 (diabetes mellitus).

Parity did not correlate with plasma glucose concentrations in any group.

Discussion

There is an association between impaired glucose tolerance and hyperglycaemia in pregnancy, on the one hand, and the incidence of intrauterine death and the number and severity of fetal malformations, on the other. Important clinical decisions are therefore made on the basis of the results of oral glucose tolerance tests during pregnancy, and it is essential that the reference values for the test are standardised and take into account the physiological changes in carbohydrate metabolism that occur during pregnancy. This study confirms that the geometric mean plasma glucose concentrations and the 2.5 and 97.5 centiles one and two hours after an oral glucose load differ significantly between mid and late pregnancy.

The effect of the size of the oral loading dose of glucose has not been adequately studied in pregnancy. In normal non-pregnant subjects it seems to have only a minor effect, but De Noble and van't Laar have shown that in subjects with slight intolerance to glucose the results of the tolerance test after a 50 g oral dose of glucose were significantly lower than those after a 100 g oral dose.⁹ Because there are practical difficulties in tolerating and retaining the large 100 g glucose load (especially by pregnant women) the World Health Organisation's expert committee on diabetes mellitus¹⁰ recommended 75 g as the loading dose for the oral glucose tolerance test and laid down standards for non-pregnant subjects. Only three (1.4%) of our patients experienced vomiting after a 75 g dose of glucose.

The present study, which intentionally concentrated on the beginning of the third trimester, when data are likely to be of most value to clinicians, showed that, though the fasting plasma glucose ranges fell within the World Health Organisation's normal range for

non-pregnant subjects, the concentrations one and two hours after the loading dose showed a reduction in glucose tolerance in the third trimester. It should be noted that the upper limit of normal at two hours in the second trimester is close to the World Health Organisation's recommendation of 7.7 mmol/l for non-pregnant subjects.

We therefore propose that for a "Southampton population" the upper limits of normal for plasma glucose concentrations two hours after a 75 g oral glucose tolerance test for the second and third trimesters are 7.5 and 9.6 mmol/l, respectively.

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Median age at death as an indicator of premature mortality

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Abstract

The median age at death from certain diseases was calculated for each year for 1969-85 and compared with that at death from all causes. The results indicated the impact of these diseases in terms of premature mortality and changes over time. Cancer was a more important cause of premature mortality among women than among men. For cancer of the cervix the median age at death increased appreciably whereas for cancer of the lung in women it slightly decreased. The median age at death is easy to calculate, does not require standardisation, and has a useful role.

Introduction

Most of the various methods used to describe the mortality from specific diseases are based on relating the incident cases to the population at risk, thereby creating a rate. When comparing rates based on populations that differ in their age distribution standardisation is necessary. As the risk of most diseases increases with age a rate is not very effective for showing the impact of diseases in terms of premature mortality. Premature mortality may be expressed as the potential years of life lost, and various methods have been developed to obtain comparable measures of premature mortality¹ (B Rennermalm, Scandinavian Population Studies No 8, in preparation). Here we present a method for indicating premature mortality based on the median age at death.

Subjects and methods

The median age at death in months from all causes was obtained by listing all deaths in the Swedish Cause of Death Registry for each year from 1969 up to and including 1985 by the age in months at the time of death. The middle case was identified. If there was an even number of deaths the median was considered to be the mean of the age of the two middle cases. The same

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method was used to determine the median age at death for all causes other than cancers and for all cancers (ICD 8th revision, 140-209) (fig 1). Death was considered to be caused by cancer if cancer was mentioned on the death certificate as a primary cause, underlying cause, or contributing cause. Figures 2 and 3 show the median age at death for some types of cancer. The comparison in these figures is the median for all deaths, including malignant disease. The number of deaths from some of the causes is also shown.

The median age at death for cancer of the lung was compared with that for cancer of the bladder, and that for cancer of the lung with that for ischaemic heart disease (fig 4). The median age at the time of the report of the diagnosis to the Swedish Cancer Registry was determined by a similar method for two types of cancer for 1970-82 (fig 5).

Results and comment

The median age at death for all deaths will change over time if the age distribution of the population changes—for instance, if the number of births differs appreciably. In addition, the introduction of a new disease that predominantly affects the young will influence the median age at death. The median age at death for various diseases or groups of diseases must thus be compared with the median age at death for all deaths or all other deaths. To make this comparison relevant deaths from the diseases under study should be excluded from the total deaths. This is important when deaths from these diseases account for a large proportion of the total deaths. As cancers account for as much as about a fifth of all deaths in Sweden the median age at death

FIG 1—Median age at death from all types of cancer (ICD 8th revision, 140-209) and from all other causes of death.

FIG 2—Median age at death and number of deaths each year from cancer of cervix and breast in women. Median age at death from all other causes is also shown.

FIG 3—Median age at death from bladder and lung cancer.

FIG 4—Median age at death from lung cancer and ischaemic heart disease.

FIG 5—Median age at time of report of diagnosis to Swedish Cancer Registry, and number of cases each year.

for all cancers was compared with that for all other causes of death. Nevertheless, for specific types of cancer, which individually account for at most 2% of total mortality, the comparison was with deaths from all causes.

The median age at death for all causes showed a gradual increase, most probably in great part because the median age of the entire population of Sweden increased, possibly as a result of declining birth rates.

The median age at death for all cancers showed that this group of diseases was considerably more important as a cause of premature mortality in women than in men and that this characteristic remained stable during the period studied. In women for the cancers we studied the types with the lowest median age at death—and consequently important causes of premature mortality—were cancer of the cervix and, to a lesser extent, of the breast and lung. For men an important cause of premature mortality was cancer of the lung. Cancer of the bladder was apparently not a major cause of premature mortality in either women or men.

The greatest changes over the period under study were for cancer of the cervix; the median age at death increased appreciably while the number of deaths decreased. Compared with the median age at death for all causes that for lung cancer in women showed a decrease.

Comparisons were made for conditions that have been linked with tobacco smoking. For the median age at death for cancer of the lung and the bladder, and for cancer of the lung and ischaemic heart disease there was a similar progression, except in women, who showed a slight decrease in the median age at death for lung cancer and an increase in that for ischaemic heart disease. Nevertheless, the median age at diagnosis of the two types of cancer did not show any major changes.

Discussion

The purpose of determining the median age at death is to obtain an indicator of premature mortality. It is reasonable to assume that the age at which a disease causes death is correlated with the age at which the disease developed. In diseases linked with exposure to

particular agents such as lung cancer and tobacco smoking, the median age at death is correlated with the age at which the exposure leading to malignant transformation began. The median age at death for those dying from lung cancer during a specific year reflects somewhat the length and intensity of their exposure to tobacco smoking. Likewise, the median age at death is secondarily correlated with the efficacy of treatment, including the promptness and correctness of diagnosis. Nevertheless, the argument cannot be taken too far, for a stationary or slightly declining median age at death for a particular condition compared with the median age at death for all causes of death—such as is being seen for women dying from lung cancer—is hardly the result of progressively less effective treatment. More possibly, it reflects changes in the length and intensity of the exposure to carcinogenic agents.

An increasing median age at death for a particular disease is more difficult to evaluate. For both cervical and breast cancer over the past decades there have been changes in treatment including screening programmes and also perhaps in the exposure to the possible causal agents in these cancers. The median age at incidence (the time at which the cancer was reported) showed the same gradual increase as the median age at death, except during the last years over this period; hence in these cases the increase in median age at death is more likely to have been due to changes in exposure than to changes in the efficacy of treatment.

The difference in women in median age at death for lung cancer and for ischaemic heart disease is difficult to explain. Whereas the decrease in median age at death for lung cancer is linked with an increased prevalence of tobacco smoking, this exposure does not seem to have greatly influenced the median age at death for ischaemic heart disease. Possibly changes over time in other risk factors for ischaemic heart disease compensated or obscured the effect of increased tobacco smoking.

The median age at death for specific causes of death does not give any new information compared with the incidences; on the contrary, it is based on less information as it does not take into account the number of cases or the size of the population at risk. It is thus not a measure of risk. Nor is the median age at death a measure of premature mortality, as a complete evaluation of the impact of a disease on premature mortality must also take into account the number of deaths it causes. Nevertheless, median age at death is effective in indicating diseases that are important causes of

premature mortality as well as changes over time. Given that it is easy to calculate and does not require standardisation, we believe that it has a useful role.

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SHORT REPORTS

Availability of “proper officers” out of office hours to manage urgent communicable disease and environmental health problems

Arrangements to ensure the availability of “proper officers” out of office hours to deal with emergency environmental health and communicable disease problems are inadequate in England and Wales. This inadequacy is part of a wider concern that current organisational arrangements in public health are unsatisfactory.

During the investigation of an outbreak of milkborne salmonellosis in Cambridge over the Easter holiday period in 1986 we found it difficult to contact some of the environmental health officers concerned. This prompted us to conduct a national survey of the availability out of office hours of

identify the duty medical officer for environmental health or the community physician. Responses varied considerably among the regions (table). Some switchboard operators suggested that we contact the police or fire brigade; others put us through to duty hospital staff, who were no more knowledgeable. Eighty local authorities (66%) did not reply or had a recorded message asking people to call during office hours. In 42 cases a recorded message gave the telephone number of the duty environmental health officer or the call was transferred to the officer’s home.

Comment

Our survey shows that less than half of the district health authorities in England and Wales and less than a third of the local authorities in England had arrangements to ensure adequate availability out of office hours of proper officers to manage urgent environmental health problems such as outbreaks of food poisoning. Authorities need to be reminded of the Department of Health and Social Security’s guidance, which calls for

Response of switchboards when asked for duty medical officer for environmental health or community physician out of office hours. Figures are numbers (percentages) of responses

Region	No of district health authorities	Health authority switchboard		Main general hospital switchboard	
		Manned telephone or call transferred	No reply or unhelpful recorded message	Satisfactory response	Unsatisfactory response
East Anglian	8	1 (13)	7 (87)	2 (25)	6 (75)
Oxford	8	2 (25)	6 (75)	2 (25)	6 (75)
West Midlands	22	7 (32)	15 (68)	8 (36)	14 (64)
South Western	11	5 (45)	6 (55)	4 (36)	7 (64)
South west Thames	13	7 (54)	6 (46)	5 (38)	8 (62)
Wessex	10	6 (60)	4 (40)	4 (40)	6 (60)
North east Thames	16	10 (63)	6 (37)	7 (44)	9 (56)
North Western	19	7 (37)	12 (63)	9 (47)	10 (53)
Trent	12	4 (33)	8 (67)	6 (50)	6 (50)
North west Thames	14	10 (71)	4 (29)	7 (50)	7 (50)
Yorkshire	17	7 (41)	10 (59)	9 (53)	8 (47)
Northern	16	10 (63)	6 (37)	9 (57)	7 (43)
Mersey	10	2 (20)	8 (80)	6 (60)	4 (40)
South east Thames	15	7 (47)	8 (53)	9 (60)	6 (40)
Wales	9	3 (33)	6 (67)	6 (67)	3 (33)
England and Wales	200	88 (44)	112 (56)	93 (46)	107 (54)

medical officers for environmental health (usually community physicians but sometimes clinical medical officers and general practitioners) and of environmental health officers.

Methods and results

All 200 district health authorities and corresponding general hospitals in England and Wales¹ and 122 local authorities randomly selected from the 367 local government districts in England² were telephoned out of office hours (at weekends, on Bank holidays, and on weekdays after 7 pm) over six months (December 1986 to June 1987) to determine the names and telephone numbers of the duty medical officer for environmental health and the environmental health officer. Altogether 112 health authorities (56%) did not reply or had an unhelpful recorded message that suggested calling during office hours. For the remaining 88 health authorities the telephone call was directly answered by or was automatically transferred to switchboard staff, usually in the local hospital or ambulance service. The switchboard operators of 107 general hospitals (54%) could not

arrangements “to ensure that urgent calls out-of-office hours can be accepted and dealt with promptly.”³ We had access to specific directories that others who may need to make urgent contact with the proper officers out of office hours are unlikely to have.^{1,2} Our experience suggests that where on call rotas are available they may not be kept up to date, possibly because proper officers are rarely required outside office hours and authorities become complacent. Therefore emergency contact procedures should occasionally be tested to ensure their continuing effectiveness. Organisational shortcomings in the management of environmental health problems have been identified previously.⁴ Our study confirms continuing deficiencies. The basis on which resources are devoted to environmental health is neither rational nor explicit, and the objectives of general managers in health authorities are different from the objectives of health committees of local authorities. The medical officer for environmental health is employed by a non-elected health authority but is accountable to an elected local authority; this can create personal and professional difficulties for medical officers. Will the recent inquiry into public health⁵ remedy this?