Subsequent three monthly follow up established that his recovery was complete.

Comment

Hepatocellular carcinoma is a frequent complication of liver cirrhosis, and patients usually die from gastrointestinal bleeding, cachexia, or liver failure. The clinical healing of our patient's hepatocellular carcinoma may have been related to the severe haemorrhagic shock. Because of its high metabolic requirements neoplastic tissue is more sensitive than normal tissue to a sudden reduction of the blood and oxygen supply.

The liver receives a dual blood supply from the hepatic artery and the portal vein, whereas hepatomas are fed predominantly by the hepatic artery.² Surgical procedures such as transcatheter arterial chemo-

embolisation³ and ligation of the hepatic artery branch⁴ have therefore been proposed to induce anoxia of the tumour when hepatectomy cannot be performed. The haemorrhage probably produced optimal conditions to kill neoplastic cells without damaging normal tissues. The sensitivity of hepatocellular carcinoma to a reduction in blood supply would therefore seem to be confirmed by this case history.

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Coffee consumption as trigger for insulin dependent diabetes mellitus in childhood

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Exposure to a risk factor is required to convert the HLA linked genetic susceptibility for insulin dependent diabetes mellitus into overt disease. The risk factors are not known: viruses, toxic chemicals, and certain dietary factors have been implicated, but results of studies have been unconvincing.¹ A long prodromal period is commonly agreed to occur before the clinical symptoms of diabetes develop, and it has been postulated that the first exposure to a risk factor might happen before birth, even at the time of conception.

Finland has the highest incidence of insulin dependent diabetes in the world.² The incidence has considerably increased during recent years as has the consumption of coffee. Finland now has the highest coffee consumption per person in the world. We investigated whether the well documented geographic variation in the incidence of insulin dependent diabetes

could be attributed to differences in coffee consumption.

Methods and results

Data on the incidence of diabetes in various countries were mainly derived from the Diabetes Epidemiology Research International Study Group,² and the national coffee consumptions per person were obtained from the International Coffee Organisation.

The figure shows the association between the annual average national coffee consumption per person and the age standardised incidence of insulin dependent diabetes (age group 0-14 years). The simple correlation between coffee consumption and the incidence of insulin dependent diabetes was 0.74. A linear regression analysis showed that 53% of the geographic variation in incidence could be attributed to differences in coffee consumption. The countries with the highest coffee consumption per head also had the highest incidence of insulin dependent diabetes.

Comment

Exposure to a risk factor that triggers insulin dependent diabetes may occur before birth. For example, rubella infections during pregnancy are associated with an increased risk of diabetes in the child. Caffeine, the most widely used psychotropic agent, could also be a risk factor in utero for insulin dependent diabetes. Its half life is prolonged in pregnancy, and it is known to cross the placenta into the fetus, where it may cause unwanted effects.³ It accumulates in fetal tissues, especially the liver and brain. It can also increase blood glucose concentrations in caffeine naive people. We postulate that high concentrations of caffeine or its metabolites have a toxic effect on intrauterine development of the pancreatic cells that produce insulin in genetically susceptible fetuses.

Pregnant women who consume large quantities of coffee have an increased risk of spontaneous abortions, premature deliveries, and giving birth to infants with reduced birth weights.³ Newborn babies eliminate caffeine remarkably slowly as they lack the enzymes that demethylate it. One case report suggested that hyperglycaemia occurred as a toxic effect in a 12 month old child who accidentally took 1.0-1.5 g caffeine.⁴

Caffeine is metabolised through the hepatic oxidase system, which is responsible for most drug oxidation reactions. The urinary excretion rate of 5-acetyl-6-formylamino-3-methyluracil, a metabolite of caffeine, strongly correlates with the reported rate of polymorphism in the N-acetylation of sulphonamides and

Annual average incidence of insulin dependent diabetes mellitus in patients aged 0-14 adjusted for age per 100 000 population by average national coffee consumption per person. (The most recent period during 1976-86 for which incidence data were available was used for each country.) Incidence = $2.59 + 1.61 \times \text{consumption}$, $R^2 = 0.53$

other drugs among different populations.⁵ The fast acetylator phenotype is more common in insulin dependent diabetics than control populations and might be an additional genetic marker for the disease.

The results of correlation analyses must be interpreted with caution. They can be used only for generating a hypothesis, not for testing it. Our results, however, suggest an association that is biologically plausible, provided early triggering of insulin dependent diabetes is accepted. We intend to test our hypothesis in animals.

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Increasing suicide rates in young adults

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A recent paper reported increasing rates of depression and a sharp rise in suicides among Americans aged 15-34 since 1960.¹ We explored the demography of suicide locally by testing the hypothesis that the suicide rate among young adults in Leicestershire increased between 1975 and 1987.

Methods and results

We used data on suicides in Leicestershire between 1 January 1975 and 31 December 1987 obtained from the Office of Population Censuses and Surveys. People who committed suicide were grouped into those aged 15-34 and those aged 35 and over, and mid-year estimates of the population in these age categories were obtained. The annual suicide rate for each age group was calculated and the natural logarithms of this rate plotted against time. Temporal trends were investigated with the generalised linear interactive modelling (GLIM) 3.77 program.

The suicide rate in people aged 15-34 increased by 6.6% each year between 1975 and 1987 (95% confidence interval 2.9% to 10.4%). The rate of increase seemed to be constant throughout the study period, a curvilinear model offering no significant improvement in fit ($0.5 < p < 0.75$). In contrast, the suicide rate among people aged 35 and over was almost constant, rising by 0.7% a year (1.4% to 2.8%). A test of the relevant interaction in a model studying

both age groups simultaneously showed that the rate of increase was significantly greater in the younger age group ($p = 0.0075$). We thought that the gradient in young people might be due to the unusually low rate in 1976. Our conclusions, however, were qualitatively unaffected when this value was excluded.

Comment

A suicide verdict is returned only when intent is established beyond reasonable doubt. Case reviews in which suicide was determined on the basis of probable intent showed that considerable underreporting exists.² Trends in recorded suicide rates may therefore reflect a shift in coroners' willingness to return a verdict of suicide rather than a change in the underlying rate.

If our results were an artefact it would imply that coroners were more willing to give a verdict of suicide for people aged 15-34 but not for people aged 35 and over. There is no reason to assume that this is the case, and thus our results probably indicate a true increase in suicides among people aged 15-34 in Leicestershire. The suicide rate in this group is now comparable with the rate among over 35s, which was previously much higher.

The increase in suicides among people aged 15-34 was largely confined to men. This finding is difficult to interpret because, as expected, few women committed suicide during the study period. A review of national data from 1950 to 1982 can be interpreted as showing an upward trend in the number of men who committed suicide in the last years of that period,³ although the trend was found in men of all ages from 25 to 64.

A differential increase in suicides among young people has been reported in the United States between 1960-1 and 1981-2.⁴

Temporal and geographic differences in recorded suicide rates are difficult to interpret for reasons explored by Farmer.⁵ Changes in the prevalence of depression may have contributed to our observation, although other psychiatric illnesses, alcohol abuse, personality disorder, and poor social integration all predispose people to suicide.

Recent interest in the media has centred on a putative increase in suicide among young men throughout the United Kingdom, which suggests that our findings may be repeated nationally. Suicide contributes substantially to mortality in the young, and it is important to identify the causes of an increased suicide rate.

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Suicide rates per 100 000 population in Leicestershire according to age, 1975-87. Vertical bars indicate 95% confidence intervals