nutrition, obesity and vitamin therapy

# Saccharin: A need for sweet common sense



THE FULL STORY of the coming and going of cyclamates from our food and drink and of the events leading up to the forthcoming battles over the safety of saccharin will, when it can be written, be an epic.

For years toxicologists and experimentalists with experience in carcinogenesis have been claiming that, given time and money, they could show that any chemical is toxic and carcinogenic. On the basis of this claim and faced with the threat of mounting sales of cyclamates, sugar interests, primarily in the United States, actively financed research aimed at showing that cyclamates were dangerous.

## Public concern

A variety of toxic effects were discovered and the description of these in scientific papers lead to mounting public concern about possible dangers from cyclamates. Curiously, however, it was simple feeding experiments carried out by the company actually making and marketing cyclamates that led to their eventual downfall.

In the first tests, rats fed on a diet containing 5% of a 10:1 cyclamate: saccharin mixture developed cancers of the bladder. However, the results of other experiments pointed more accusingly at the cyclamate component of the mixture than at saccharin, and so in 1969 cyclamates with unexpected suddenness were banned.

Early in 1970, the *Lancet* in its editorial columns commented on the ban as follows:— "In some senses it was easy to ban cyclamates because an alternative non-nutritive sweetener, saccharin, was available. If anyone shows that saccharin is also carcinogenic the stage will be set for the real debate on the relative benefits and costs of banning the use of non-fattening sweeteners."

## Alternatives

In 1973, we are seemingly ready for that debate, for there is now evidence (as yet unpublished) from experiments conducted in more than one laboratory that an otherwise normal diet that contains a high concentration of saccharin may predispose to the development of bladder cancer in rats.

In the case of both cyclamates and saccharin bladder tumour formation is associated with an increased incidence of urinary calculi, and in the rat there is evidence that the presence of calculi in the lumen of the bladder increases the chance cancer will develop.

In the case of both sweetening agents, bladder cancers were only seen in animals fed on diets containing far higher concentrations that would ever normally be consumed by man. However, because the sweetening capacity of saccharin is more than ten times that of cyclamate the margin between the doses necessary to produce bladder cancers in rats and those consumed by man is narrower for cyclamate than for saccharin. So far no one has found that either sweetening agent increases the incidence of cancer of any site other than the bladder or of any site at all in any species apart from the rat.

Could we live without saccharin? Given the capacity for self-discipline and endurance of a Trappist monk, of course, we could. But the self-indulgent masses could not and would not accept a lack of sweetness in what they eat and drink. The majority could — no doubt with the approval of the sugar interests that started the present furore — eat more sugar. This option, however, is not open to diabetics.

The development of an alternative artificial sweetening agent such as the peptide, Aspartame which is currently being developed by G.D. Searle & Co. could at least postpone the decision. However, it is becoming difficult to believe that any new agent can survive very long before someone finds it to be carcinogenic under one set of circumstances or another.

Perhaps a better approach would be to face the problem squarely as has been done with the contraceptive pill. It is established beyond any reasonable doubt that there are hazards to health associated with the pill, but we recognise that there are even greater dangers associated with actually having babies, both to the mother personally and to the world in the form of over-population.

## Grounds for concern

If the only alternatives to continuing to take a risk to health by consuming saccharin, are a life of miserably un-sweet foods and drinks or obesity and the risks to good health and life associated with obesity, then on present evidence it would be wisest to continue with saccharin.

Moreover, manufacturers pop saccharin into food irrespective of whether the eventual consumers need to watch their weights or not. Thus children of perfectly normal dimensions may, if they are soft drink addicts take in relatively large amounts of artificial sweeteners. Indeed, it is in relation to children that the grounds for concern are greatest.

## No evidence

Not only may they consume most, but they can expect to live long enough for even a weak cancer risk to become manifest. Whatever the arguments, however, the banning of saccharin apart from causing a major social upheaval would almost certainly increase the incidence of obesity among ordinary people.

In point of fact, the evidence that either cyclamate or saccharin really constitutes a cancer risk for man is, to say the least, tenuous. In both cases the mechanism of bladder cancer induction in rats might have been an indirect rather than a direct one, and, as pointed out above, there is no evidence that either agent in the concentration consumed by man, is carcinogenic even for the rat.

Diabetics who rely on artificial sweeteners more than normal people do not experience an excessive risk of bladder cancer. Indeed, the only form of cancer especially associated with diabetes is of the pancreas — the organ primarily involved in the diabetic process itself.

## Major factor

Obesity, as every doctor knows, brings many miseries to life, and as every actuary knows, is frequently associated with premature death. Excessive consumption of sugar is thought to be a major factor in the causation not only of obesity itself but also of diabetes, coronary heart disease and dental caries. By way of contrast, there is no substantial evidence that saccharin ever did anyone any real harm.

Dennis Burkitt *(British Medical Journal 1969, 4, 495)* summed up the situation quite succinctly at the time cyclamates were banned. "Would not the replacement of cyclamates by sugar not be tantamount to recommending a therapeutic procedure carrying a 10% mortality to treat a disease having a 1% mortality?"