ANY QUESTIONS?

We publish below a selection of questions and answers of general interest.

Hazard from Aminofluoride Flux

Q.—Is there any danger in inhaling the fumes given off when soldering aluminium with Kynal? Are there any toxic effects from handling the flux, and does it affect the skin?

A.—Kynal is an organic aminofluoride flux. McCann1 studied the possible health hazards arising from the use of such fluxes. Health and safety problems in soldering and brazing and the preventive measures to be taken are outlined in detail in an Institute of Welding publication.2

The active constituents of fluxes such as Kynal are believed to be ammonium fluoroborate, aminooethylethanolamine, and zinc oxide. The fumes evolved from soldering may contain ammonia, boric acid, hydrogen fluoride, soluble particulate fluoride, and aminooethanolamine vapour. Hydrogen fluoride is present at the soldering surface but is unlikely to be present in the breathing zone of the operator. Fluorides are known to be skin irritants and may be sensitizers. Soluble fluorides are corrosive to skin and mucous membranes. Inhalation of fluoride dust over years may result in fluorosis, a sclerosing disease of bones. Ammonia is a skin, eye, and respiratory tract irritant. Aminooethanolamine may be a weak skin irritant and sensitizer.

The following preventive measures are suggested: (1) Employees should be informed of the potentially irritating nature of the flux, and their co-operation obtained in carrying out precautionary measures. (2) Minimum amounts of flux should be used. (3) A code of practice on skin care should be followed. This involves regular hand-washing and drying, application of barrier cream, and the use of gloves if possible. Great care must be taken to avoid flux entering the glove. (4) It may be necessary, according to the process and the location of the process, to provide local exhaust ventilation. (5) It may be advisable to exclude employees with existing skin disease or abnormality or a history of asthma or recurrent bronchitis.

REFERENCES


Insomnia in the Elderly

Q.—What is a suitable hypnotic for elderly patients who wake early and remain awake?

A.—Early morning waking in an elderly person is suggestive of depressive psychosis. Sometimes the sleep disturbance is one of the most prominent features of depression and the use of sedatives alone gives unsatisfactory results. The best treatment for this disturbance of sleep is the treatment of the depression itself.

In the elderly imipramine or desipramine in doses of 25 mg. three times a day and gradually increasing over a period of two weeks to the maximum dose might first be tried. McDermid and Hutchinson,3 using phenelzine, 30 mg. twice a day, reported favourable results in senile depression with restoration of normal sleep rhythm. Other drugs for mild depression in the elderly are opipramol, amitriptyline, and nortriptyline, and the use of some of these has been reviewed by Pond.4

Long-acting barbiturates, which are sometimes given for this type of insomnia in younger patients, are best avoided in the elderly. Even when they are not well tolerated, but certain tranquillizers appear to be satisfactory as hypnotics in the elderly.5 Meprobamate (800 mg.) exerts a fairly uniform sedative action throughout the day, and promazine nitrate (50 mg.) acts over a period of 3 to 7 hours after administration.

Genetic Morphism

Q.—What is a genetic morphism?

A.—A genetic polymorphism is the co-existence of two or more genetically determined and well-defined forms ("phases") of a gene at the same locus.6 The ABO blood-group types are an example of a genetic polymorphism in man. One individual form—for example, group B—in a polymorphic system may be called a "genetic morphism." It has recently been suggested that schizophrenia is a genetic morphism.7

REFERENCES


Hyperthermia and Cancer

Q.—What role can hyperthermia, either local or systemic, play in the treatment of cancer?

A.—Over the last 50 years scattered reports have appeared of the cytotoxic effect of hyperthermia on animal and human tumours. There have also been reports of temporary improvement after bacterial infection accompanied by high fever in cases of lymphoma and leukaemia.

Systemic hyperthermia has been produced with pyrogens and with malaria. Although some very transient improvements in the blood counts occurred in some patients with leukaemia there was no definite remission. However, systemic elevation of temperature can be very dangerous, and the experimental work on animal systems suggests that the temperature could not be raised sufficiently high to produce tumour damage without serious damage to the normal body tissues.

More intensive work has been done on the use of local hyperthermia, particularly to increase the effectiveness of radiotherapy. In animals it has been shown that the temperatures of 42°C and upwards are damaging to tumours and that normal tissues are more resistant in this respect. Using temperatures of 44 to 46°C and heating the tumour tissue before radiotherapy has allowed the destruction of tumours to occur at as little as one half the radiotherapy dose, usually required. However, unless the tumour is superficial heating cannot be done adequately, and if it is superficial the advantages of reducing the irradiation dose are slight.

Crile8 has also used local hyperthermia in liver metastases with slow-diatry coagulation methods followed by irradiation of the same areas almost immediately. Although Crile reports some of his successes, he does not state the total number of cases treated. He does show in his animal experiments that the tumour is probably not killed by the heat itself but by the inflammatory reaction which it generates. It may be, then, that any agent which causes a profound inflammatory reaction around a tumour is likely to destroy it.

Sabin9 has also reported improvements in patients receiving heat therapy by local application. The use of local increase in temperature combined with chemotherapy has been advocated10 and does increase the uptake of nitrogen mustards into the heated tissues, both tumorous and normal ones. Hyperthermia combined with hyperbaric oxygen saturation has also produced severe tumour necrosis in a few patients.11

In general, the use of high temperature systems are too dangerous to be of any value, and the use of hyperthermia locally, while reducing the necessary dose of radiation or chemothapeutic agent, seems to be of little extra value in the treatment of most malignant diseases.

REFERENCES


Hypocalcaemia and Convulsions

Q.—How often is hypocalcaemia associated with convulsions? When Chvostek's and Trousseau's signs are negative is there any need to investigate serum calcium levels?

A.—Hypocalcaemia is fairly often associated with convulsions in adults as well as in children, and the possibility of hypocalcaemia should always be considered in patients who have had unexplained convulsions, particularly if they have had a thyroidectomy.12 The diagnostic problem may be made more difficult because hypocalcaemia may also be associated with pапillodema, thus causing confusion about a cerebral tumour.13 The serum calcium should be estimated even if Chvostek's and Trousseau's signs are negative, since a convulsion may be the only sign of hypocalcaemia.

REFERENCES


Correction

The late Dr. G. T. Bevirs, whose obituary appeared in our issue of 16 April (p. 980), was at St. Edward's School, Oxford, not King Edward's School.