Letter to the Journal

TOXICITY OF DECOMPOSITION PRODUCTS OF "TEFLON"

To the Editor:

Information has recently been brought to my attention by our Safety Department at the Kitimat Works of the Aluminium Company of Canada regarding the toxicity of Teflon (Dupont's tetrafluoroethylene resin). Although undoubtedly a rare hazard, it has the potential of becoming a very serious one.

The thermal decomposition of Teflon results in a toxic gas, perfluoroisobutene, which is about ten times as toxic as phosgene. However, tests have indicated that the toxic decomposition does not occur below 400° F., and no ill effects have been reported by individuals exposed to Teflon heated below this temperature. Because of the extremely toxic nature of the decomposition products of Teflon, disposal of waste Teflon becomes a special problem. These parts should not be disposed of as common waste but should be buried in the ground. The reason for this extreme precaution is that minute quantities of the decomposition products of Teflon can cause serious illness and even death. This information is derived from the British Columbia Fire Chiefs' Association Notes and News (3rd Edition).

The following case illustrates this: An employee laid a lighted cigarette on the edge of a sheet of Teflon and later picked it up and continued smoking. The cigarette had become contaminated with enough Teflon to cause this employee to become violently ill, and he later died from edema of the lungs caused by the inhalation of the gas, perfluoroisobutene.

All scrap Teflon should be accumulated in a covered metal container painted a distinctive colour and marked SCRAP TEFLON in large letters. Until this container is full, it should be kept in an isolated area of the plant or hospital where the possibility of fire is remote. When the container is full, it should be buried at a depth of at least four feet. In the event of a flash fire in an area where Teflon is in use, extreme caution should be taken to protect employees from exposure to decomposition products of this resin.

Teflon has advantages which have led to its use in industry for piston rings, valve spindle coatings and various gaskets. I was not so aware of the potential hazard attached to it, and perhaps other surgeons are not. The problem is an administrative one rather than medical, but demands the serious consideration of any physician attached to any industry where this agent is in use. Personnel in the operating theatre and other hospital staff members who come in contact with it during reconstructive vascular surgery must be aware of the risk.

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MEDICAL NEWS IN BRIEF

EFFECT OF CORTICOTROPIN AND STEROID DRUGS ON BILIRUBINEMIA

Administration of steroids or corticotropin results in a greater fall in concentration of serum bilirubin in patients with hepatitis having obstructive features than in patients with jaundice due to cirrhosis or extrahepatic obstruction. This differential reduction in bilirubinemia, described by Summerskill (*Am. J. M. Sc.*, 241: 555, 1961), often enables the two causes of jaundice to be distinguished.

In patients with acute hepatitis, reduction in bilirubinemia is associated with a striking increase in caloric intake and improvement in respect of chemical tests of hepatic function. Studies in dogs with jaundice after ligation of the bile duct showed that cortisone had no effect on the concentration of serum bilirubin or on erythrocyte survival time.

It is concluded that steroids or corticotropin influences jaundice *only* by their effect on hepatic function. Evidence is put forward to suggest that this may be a specific action limited to hepatic disease that is associated with autoimmune factors.

DEMETHYLCHLORTETRACYCLINE PHOTOTOXICITY

Saslaw has described a phototoxic reaction due to demethylchlortetracycline incurred by himself while on an automobile drive after he had been taking 300 mg. of the drug, three times a day, for purulent bronchitis, for a period of five days (*New England J. Med.*, 264: 1301, 1961). He had a deep tan at the time. He was driving on a sunny day, with the temperature in the 60's, and had all the car's windows closed, except for a slight opening in the vent window on the driver's side.

Within one hour, the sunlight entering through the opening in the vent elicited a phototoxic reaction in his hands, consisting of edema, erythema and swelling. At this time the vent was closed, but within five and a half hours small pruritic vesicles appeared.

He discontinued taking demethylchlortetracycline, but pruritus, edema and erythema persisted for one week, and his hands were particularly sensitive to warm water and soap for two weeks. By the second week the skin had begun to peel. Subsequently, improvement was slow and gradual. However, even as