



DEPARTMENT OF MINERALS AND ENERGY

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MANAGEMENT OF HYDROFLUORIC ACID BURNS

A recent fatality arising out of an accidental spillage on to the skin of a laboratory worker highlights the highly toxic nature of this compound.

Exposure to dilute and concentrated solutions of hydrofluoric acid (HF) may lead to severe pain and rapid progressive tissue necrosis of the skin or corneal erosion. Deep tissue injury may result, damaging nerves, blood vessels, tendons and bone.

With more than 50% HF pain is immediate, delayed for 6 hrs with 20-50% HF, and delayed up to 24 hrs after contact with less than 20% HF.

Appropriate first aid and medical management can dramatically effect the prognosis following skin or eye contact.

Skin contact:

Local treatment consists of copious water lavage for 15 minutes and the application of topical 2.5% calcium gluconate gel. This must be vigorously and continuously rubbed in until pain free. Further applications will be needed every 15 minutes for several hours. The use of iced quaternary ammonium compounds, such as benzalkonium chloride as soaks can also be used applied for 4 hours (not to the head).

Continuing severe pain and evidence of deeper tissue injury requires subdermal 5% calcium gluconate injection, 0.5 mL per cm² of burned area. Relief of pain indicates effectiveness of treatment.

Eye contact:

Corneal exposure requires repeated installation of 1% calcium gluconate eye drops after initial water flushing for 5 minutes. This can be followed with conventional management of acid burns to the eye.

Quaternary ammonium compounds should NOT be used on the face or near the eyes. 2.5% calcium gluconate gel can be used on the face.

On ECG, prolongation of the QT interval may be regarded as an early sensitive indicator of hypoglycaemia and needs to be managed accordingly.

Please contact Dr Brian Galton-Fenzi (Consultant Occupational Physician) for further information on (08) 92223650.

References:

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