

Treatment of Phenol Burns

Introduction

Phenol is an extremely poisonous and corrosive chemical, which is absorbed through the skin and causes toxicity by this route. It can be retained in the skin causing tissue damage even after it has been removed from the skin's surface.

Polyethylene glycol (PEG) (MW300) in aqueous solution can be used to remove phenol from skin.

Advice from Dr Richard Elliott (HSE Medical Unit, Bootle, Merseyside) is that treatment with PEG is best used as a secondary measure to remove residual phenol after initial copious irrigation with water, in cases where phenol has been spilt on a small area of skin (a couple of square centimetres). In the case of large burns the most useful effect will probably be the reduction of potential systemic toxicity. In the case of smaller burns (e.g. a finger dipped in phenol) the more useful effect of PEG will be removal of residual phenol from the skin and thus a reduction in late tissue damage.

All Departments using phenol should undertake a risk assessment to determine likely scenarios of contamination and thereby determine the necessity to keep stocks of aqueous PEG.

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Skin Contact

Symptoms

Severe burns occur at the contact site. They are painless and may be seen as moist, white (or red/yellow) wrinkled skin. NB Phenol can be absorbed through the skin and symptoms may be similar to those of ingestion/inhalation. Fatalities following skin contact have been documented.

Action

Remove all contaminated clothing wearing suitable protective gloves (neoprene, natural rubber or PVC, **NOT** nitrile) and wash affected areas for at least 30 minutes with water followed by polyethylene glycol (MW 300) if available.

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Eye Contact

Symptoms

Severe pain and redness. Corneal burns can also occur.

Action

Wash with running water for at least 10 minutes. Do not use polyethylene glycol (MW 300) in the eye.

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Ingestion

Symptoms

There may be a burning sensation in the throat with nausea and vomiting (of blood). Body temperature may rise and the pupils of the eye become dilated. Symptoms similar to those of inhalation may occur.

Action

If possible, remove the patient to the fresh air, keep warm and at rest - ensure that no one else is put at risk. Convulsions can occur in many serious cases of chemical poisoning. If the casualty becomes unconscious or if he vomits, place in the recovery position.

If oxygen is available it should be given 100% by mask with the casualty sitting quietly.

Oxygen is available from the Student Health Service however in the interests of obtaining prompt medical attention an ambulance should be called immediately. All ambulance crews are experienced in administration of oxygen.

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Inhalation

Symptoms

Mild poisoning causes burning of the mouth and throat with nausea, sweating and shortness of breathe. In severe poisoning; congestion of the lungs may result causing a severe shortness of breathe, as well as mental confusion, unconsciousness and convulsions.

Action

As for ingestion.

If a conscious casualty develops difficulty in breathing or if congestion of the lungs is suspected the casualty should be in a sitting position and be transferred to hospital as soon as possible as this is a serious complication.

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References

Substances Hazardous to Health Emergency First Aid Guide. Ed Dr A Houston MB BS, MFPM, Pub Croner Publications.