Don't Get Burned at Work

by Debbie Feldman

In 1998, private industry tallied more than 40,000 heat burns, chemical burns, and scald injuries that required recuperation away from work, according to the Bureau of Labor Statistics. Who's at risk for burn injuries? Firefighters, miners, construction workers, petroleum refinery workers, natural gas pipeline workers, electricians, farm workers, car mechanics, swimming pool maintenance workers, utility workers on high tension wires, steel mill workers, food industry personnel, and anyone exposed to lightning strikes, chemical spills or explosions.

Know your burns

The three types of burns are radiant, chemical and thermal. Radiant burns are caused by sunburn. Chemical burns can be caused by acids (sulphuric acid, nitric acid, hydrochloric acid, hydrofluoric acid), alkalis, or organic substances.

Sulphuric acid occurs in metal cleaners, auto battery fluid and fertilizer manufacturing. Nitric acid is used in engraving, metal refining and fertilizer manufacturing. Hydrochloric acid is used in dye manufacturing, lab chemicals and metal refining. Hydrofluoric acid is used in tile cleaners, petroleum refining, tire cleaners and refrigerant manufacturing.

Alkalis are in ammonia, calcium hydroxide, caustic soda, potash, lime, swimming pool chemicals, mortar plaster, cement, concrete and fertilizer. Both acids and alkalis are caustic. Chemical burns may also be caused by organic compounds like gasoline, diesel fuel, other petroleum products, and creosote.

Thermal burns are caused by exposure to extreme heat. They include contact burns (from direct contact with a hot object), scalds (from contact with hot liquid), steam burns (from pressurized steam or liquid), flash burns (from rapid ignition of a flammable gas or liquid), and electrical burns. Electrical burns should always be looked at by a doctor because while they may appear to be minor, the damage can extend deep into the tissues beneath the skin.

Look beneath the surface

Burns are classified by the depth of the injury — superficial, partial thickness or full-thickness. Superficial (first-degree) burns affect only the epidermis, or top layer of the skin. In superficial burns, there is no blistering, and these burns usually heal well because new skin grows from the dermis. Mild cases of sunburn are classified as superficial burns, for example.

To relieve the pain of minor burns, take over-the-counter anti-inflammatory medicines such as acetaminophen or aspirin. To prevent infection, use an antibiotic cream.

In partial-thickness (second-degree) burns, the epidermis is destroyed, and part of the dermis (the layer under the epidermis) is affected. In this type of burn, blisters form and the patient experiences a great deal of pain due to nerve endings in the dermis being exposed. If a deep second-degree burn is not treated, it can change into a third-degree burn. Second-degree will cause scarring, but most don't require skin grafting.

Full-thickness (third-degree) burns destroy the epidermis and the dermis, and the injury may even extend to underlying tissue, muscle or bone. There usually is not pain, since the nerve endings are destroyed. Healing is difficult, and skin can't grow back. There is a great deal of scarring, and skin grafts are necessary.

Watch for infection

"Remember that skin is the body's largest organ and needs to be treated when it's injured," says Robert Dembicki, nurse manager at the Burn Center at New York-Presbyterian Hospital's Weill Cornell Center. "Even a small burn can get infected, and an injury from a burn can become deeper if not treated."

Prevent burns before they happen

"The best way to prevent burns is to use common sense and good judgment," says Glenn D. Warden, M.D., chief of staff at Cincinnati Shriners Hospital for Children and professor of surgery at the University of Cincinnati Medical Center. "Follow risk management advice in your workplace."

Learn about the chemicals in your workplace and how to handle them. Wear safety glasses, protective gloves, and proper clothing and footwear for the type of work you do. In workplaces where chemicals are handled, know the location of emergency shower systems and eyewash machines and how to use them.

OSHA regulations state employers must provide eye protection in occupations where there is a potential for injury to the eyes or face from molten metal, liquid chemicals, acids or caustic liquids, chemicals, gases or vapors. Supervisors are required to provide employees with appropriate hand protection, depending on the particular hazard (chemicals, heat or flame) present in the workplace.

When an injury happens, "cool the burn down," says Warden. "Use tepid water, not ice water, and take the person to the emergency room." All burn victims should be treated as trauma victims.

If you learn about the products you work with, wear protective clothing, and use caution, you can reduce your risk of getting burned. ◆