

Burn Center Guideline: Hydrofluoric Acid Burn

NOTE:

Hydrofluoric acid is a common acid used to etch glass and clean industrial equipment, trucks, and military apparatus. HF is particularly dangerous because it is a very power acid as well as a toxin. The fluoride ion binds to calcium and magnesium. As in all chemical injuries, protect yourself, other team members, patients, visitors, and the hospital from contamination with hazardous materials. Skin exposure of 1.5 g HF can be lethal.

HF
inhalation

Nebulized solution
of calcium
gluconate and
IPPB

HF skin
exposure

Concentration
of
HF?

HF <20% solution
Produces delayed
pain for upto 24
hrs with resultant
delay in therapy

HF 20-50%
solution.
Symptoms may
not become
apparent for
several hours

HF 50% solution
Produces
immediate pain
and necrosis

HF eye
exposure

Immediate and
copious irrigation
with water or
saline. DO NOT
DELAY

WARNING:
Do not irrigate with
calcium chloride which
is associated with an
increased rate of
corneal ulceration

Consult
ophthomology

WARNING

CONSULTS and CALLS
Relief of pain is the key determinant that treatment is arresting tissue destruction and systemic toxicity. Given the various concentrations, the patient may not become symptomatic for several hours. Therefore, it is preferable to observe these patients rather than discharge the patients and have them develop pain, tissue destruction, and metabolic toxicity

Irrigate wound
copiously with
water (30 to 60
minutes)

Remains acidic

Check pH of
irrigation effluent
with litmus paper

Calcium gluconate gel (3.5g of
2.5% calcium gluconate mixed
with 5 oz of water-soluble
lubricant applied to the wound
4-6 times each day for 3-4
days

Concentration
greater than 50%

Calcium gluconate
injection:
0.5 mL per square
cm of 10%
calcium gluconate

Hand
Burn

Intra-arterial
Calcium Infusic
10mL of 10%
calcium gluconate
in 40 mL D5W
over 8 hrs,
reevaluate at
hrs

Consider surgical
excision

Monitor serum calcium,
magnesium, sodium, and
potassium levels

Monitor EKG, esp
prolongation of the QT
interval

Severe fluoride toxicity:
fluoride ions can be
removed by
hemodialysis or cation
exchange resins

WARNING:

Do not inject HF burns to the hand because of the large volume of flu that is required can cause a compartment syndrome of the han which will often require palmar fasciotomy