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Cyanide-induced contact dermatitis

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Objective: To report skin manifestations from cyanide exposure

Case report: A 55-year-old male presented to the hospital with skin rash for 5 days. The symptoms started after he added sodium cyanide (NaCN) into the pond for fishing and then he had slipped in to the pond. He bought NaCN from a farming shop. He suddenly developed pain and skin redness to both legs. The skin lesion got worse and became brown color on day 5. Physical examination revealed good consciousness and no tachypnea. His vital signs included blood pressure 120/80 mmHg, pulse 80/min, respiratory rate 20/min, body temperature 37 degree Celsius. His oxygen saturation was 100 percent. Hyperpigmented plaques with multiple fissures and lichenification scale with epidermal necrosis were observed from level below both knees. Blood test results demonstrated lactate level 0.5mmol/l, anion gap 10 and venous oxygen saturation 58%. Testing was not available for blood cyanide level. He did not develop any sign of systemic toxicity concerning cyanide. He stayed in hospital for 5 days and was treated with topical steroids and supportive symptomatic. His skin manifestations improved but some hyperpigmented lesions remained before discharge.

Conclusion: Cyanide is a highly toxic substance to human health that can be absorbed into body by inhalation, ingestion and skin contact. Cyanide can be divided into inorganic cyanide (cyanide salt), organic cyanide (nitrile) and cyanogen gas. NaCN is cyanide salt with chemical properties of a white water-soluble crystal and strong base. NaCN is used for cyanide fishing but it is an illegal method. The skin absorption of NaCN is increase when skin is cut or moist. When NaCN is expose to moisture it becomes hydrogen cyanide gas. For contact between hydrogen cyanide and unabraded skin the LD50 is 100mg/kg, but cyanide can also irritate skin and cause contact dermatitis. The skin manifestations vary depending on the rate of absorption, concentration and time to presentation. The typical skin presentation is called cyanide rash: redness, vesiculation and disruption. Other skin reactions are erythema multiforme, Stevens-Johnson and Toxic Epidermal Necrolysis. Skin manifestations in this patient were not typical because of the delay to treatment of 5 days. Treatment of cyanide-induced contact dermatitis is early decontamination and steroid administration.

Reference:

- (1)TSRajashekar,Rajendra Okade. Irritant contact dermatitis to accidental exposure of cyanide. Indian j Dermatol. 2013; 58(2):162.
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