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Basic and Clinical Pharmacology and Toxicology

Volume 99, Issue 4, October 2006, Pages 273-282

Comparison of early and late toxic effects of sulfur mustard in Iranian veterans (Short Survey)

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Abstract

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Sulfur mustard is an alkylating agent that reacts with ocular, respiratory, cutaneous, and bone marrow tissues, resulting in early and late toxic effects. We compare these effects based on the experience in Iranian veterans exposed to the agent during the Iran-Iraq conflict (1983-88). The first clinical manifestations of sulfur mustard poisoning occurred in the eyes with a sensation of grittiness, lacrimation, photophobia, blepharospasm, and corneal ulceration. Respiratory effects appeared as rhinorrhea, laryngitis, tracheobronchitis, and dyspnoea. Skin lesions varied from erythema to bullous necrotization. Initial leukocytosis and lymphopenia returned to normal within four weeks in recovered patients, but marked cytopenia with bone marrow failure occurred in fatal cases. Late toxic effects of sulfur mustard were most commonly found in lungs, skin and eyes. Main respiratory complications were chronic obstructive pulmonary disease, bronchiectasis, asthma, large airway narrowing, and pulmonary fibrosis. Late skin lesions were hyperpigmentation, dry skin, atrophy, and hypopigmentation. Fifteen of the severely intoxicated patients were diagnosed with delayed keratitis, having corneal vascularization, thinning, and epithelial defect. Respiratory complications exacerbated over time, while cutaneous and ocular lesions decreased or remained constant. Both the severity and frequency of bronchiectatic lesions increased during long-term follow-up. The only deteriorating cutaneous complication was dry skin. The maximum incidence of delayed keratitis was observed 15 to 20 years after initial exposure. Being suggested as the main cause of associated with malignancies and recurrent infections, natural killer cells were significantly lower 16 to 20 years after intoxication. © Basic & Clinical Pharmacology & Toxicology 2006.

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Indexed Keywords

EMTREE drug terms: mustard gas

EMTREE medical terms: abnormal sensation; alkylation; blepharospasm; bone marrow; bone marrow depression; bronchiectasis; chemical warfare; chronic obstructive lung disease; cornea ulcer; disease association; disease exacerbation; dry skin; dyspnea; follow up; grittiness; human; human tissue; hyperpigmentation; hypopigmentation; incidence; Iran; keratitis; lacrimation; laryngitis; leukocytosis; lung parenchyma; lymphocytopenia; natural killer cell; photophobia; priority journal; recurrent infection; rhinorrhea; short survey; skin atrophy; skin defect; toxin analysis; tracheobronchitis; veteran

MeSH: Chemical Warfare Agents; Humans; Inhalation Exposure; Iran; Mustard Gas; Respiratory Tract Diseases; Skin Diseases; Veterans

Medline is the source for the MeSH terms of this document.

Chemicals and CAS Registry Numbers: mustard gas, 505-60-2; Chemical Warfare Agents; Mustard Gas, 505-60-2

ISSN: 17427835 CODEN: BCPTB Source Type: Journal Original language: English
DOI: 10.1111/j.1742-7843.2006.pto_429.x PubMed ID: 17040211 Document Type: Short Survey

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